

the
UNIVERSITY
of
TORONTO
MEDICAL
JOURNAL



NOV. 1968 VOL. XLVI NUMBER 1

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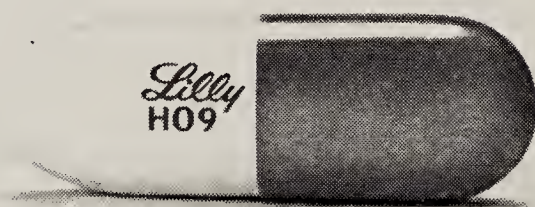
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*For four generations
we've been making
medicines as if
people's lives
depended on them.*



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the
UNIVERSITY
of
TORONTO
MEDICAL
JOURNAL

Established December 1923
An Undergraduate Publication

Volume XLVI
Number 1
November 1968

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This Journal is published six times a year from November to April, by the Medical Society of the University of Toronto, to serve primarily as a medium for student expression.

SUBSCRIPTION RATES: \$5.00 for one volume of six consecutive issues. Single copies, \$1.00.

CORRESPONDENCE should be addressed to:

U. of T. Medical Journal,
Medical Sciences Bldg.,
University of Toronto,
Toronto 5, Canada.

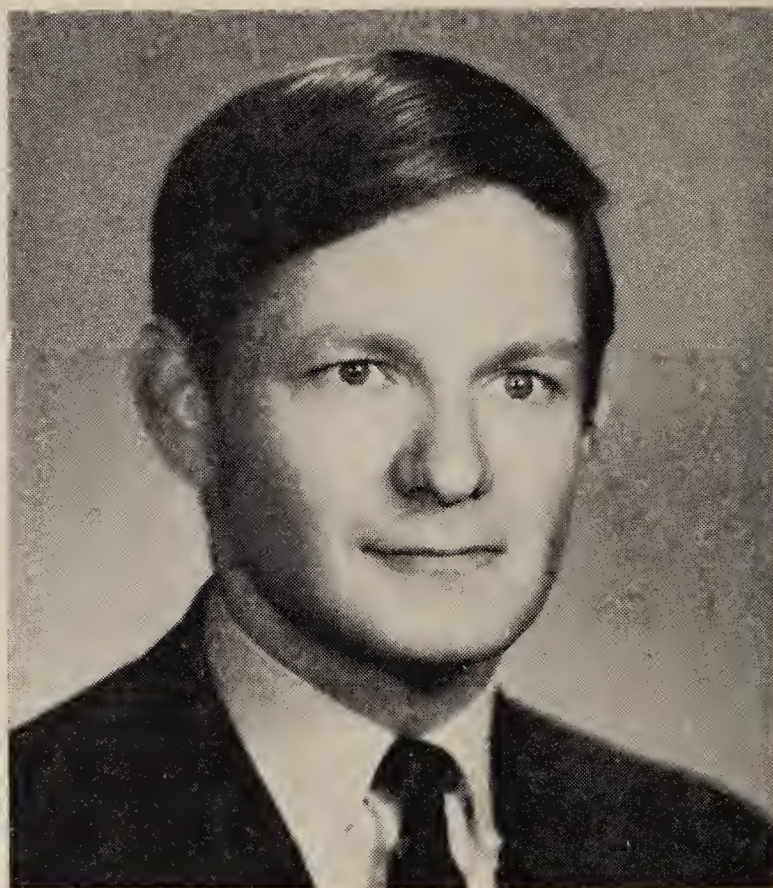
Authorized as second class mail by the Post Office Department, Ottawa, and for payment of postage in cash.
Printers: Maple Leaf Press, Toronto, Ontario.

Guest Editorial

DR. JOHN ROBERTSON UNWIN,
M.B., B.S., M.Sc., D.P.M., D.Psych., C.R.C.P.(C)

Dr. Unwin was born in Australia, where he carried out his basic medical studies and obtained his degrees in Medicine and Surgery from the University of Queensland in 1956. His post-doctoral graduate work in psychiatry was conducted in Australia, London, Paris, and at McGill University. Dr. Unwin holds diplomas in psychiatry from the Royal College of Physicians and Surgeons of England and from McGill University. He was also awarded a Master of Science in Psychiatry by McGill University in 1965 for his study of fraternity initiations. He holds certification as a Specialist in Psychiatry from the Royal College of Physicians and Surgeons of Canada.

Dr. Unwin has published papers on a wide variety of topics connected with the problems of youth. He specializes in the psychiatry of adolescents and college students, and is at present the Director of the Adolescent Service of the Allan Memorial Institute of Psychiatry and Assistant Professor of Psychiatry in the Faculty of Medicine of McGill University.



Psychiatry: Past Imperfect, Present Indicative, Future Indefinite

The viewpoint of man as a biopsychosocial entity is well illustrated by the diverse fronts on which psychiatry has advanced over the past few decades—biochemistry and neurophysiology, psychopharmacology, behaviour therapy, milieu therapy, family therapy, community and social psychiatry and transcultural psychiatry are but a few examples. The mosaic is disjointed and vastly incomplete, and the relationships between the various areas of thought and activity only tenuously defined.

The need for an integrated approach permeates psychiatry and the disciplines which are beginning to impinge on it—experimental psychology, sociology, cultural anthropology, ethology, biogenetics, etc. The painfully slow process of synthesis and integration is particularly evident in the general field of psychotherapy, where eclecticism in theory and practice was until quite recently viewed as being equivalent to diletantism rather than as the comprehensive application of the best available techniques to a particular problem. Some practitioners, with a maximum of pride and prejudice and a minimum of pragmatism, still cling in doctrinaire fashion to allegedly all-inclusive and mutually-exclusive theories and techniques; thus the analyst will decry the “superficial” symptomatic approach of the behaviour therapist, who in his turn will deny the necessity of psychodynamic concepts and only begrudgingly (and lately) admit to the possible significance of the therapeutic relationship. Yet psychoanalysis and its derivatives have made rich contributions to the understanding and modification of human feelings and behaviour, while learning theory, on which behaviour therapy bases its techniques, offers the opportunity to define operationally most psychodynamic concepts and thus lays the way open for fruitful collaboration in testing the validity and reliability of constructs. Each therapeutic approach by itself is limited—psychoanalysis is uneconomic in terms of cost, availability of trained personnel, and time needed to effect meaningful change, while behaviour therapy is as yet effective only with such clearly-defined symptoms as phobias.

Current trends indicate that psychiatry is expanding beyond an overdetermined preoccupation (for North America at least) with subjective experience and the psychogenetic history of the individual, towards an evaluation of the biological substrate and the sociocultural and historical setting of a person's existence. If one were to single out the recent advance which has had the most significant impact on psychiatric practice, one would choose the field of psychopharmacology. The introduction of the phenothiazines in the early

fifties opened the way not only for symptom amelioration but also to a pronounced decrease in the census of chronic patients in mental hospitals, the introduction of "open door" policies, awareness of the impact of the hospital milieu and so the development of milieu therapy programs, and an increasing role for the general practitioner in the care of psychiatric patients. More importantly, advances in psychopharmacology (major and minor tranquilizers, antidepressants, and to a lesser extent the controversial psychedelics) have stimulated a search for a more satisfactory psychiatric nosology and intensified research into the biochemistry of mental illness, centering particularly on the biogenic amines.

With growing attention to biological and social aspects, psychiatry is gradually heading back towards the mainstream of general medicine. Simultaneously, general medicine is moving towards a more comprehensive attitude towards the patient as an emotionally-reacting individual rather than a collection of unaware organs and systems. This trend is reflected in those medical schools which now introduce students to live humans in their first year of studies through such courses as Growth and Behaviour—a reaction against the more traditional but essentially disillusioning and dehumanising introduction to humans through a progression from the remotely dead of the dissecting room to the recently dead of the autopsy room to the regrettably dying chronic or crisis case to, ultimately, the reasonably healthy patient who constitutes the larger part of medical practice and whose needs presumably initially attracted most students to medicine.

As our society moves rapidly and (God and the generals willing) surely into the post-industrial era, the impact of technology—communications, computers, bionics, cybernetics etc.—will necessitate radical and probably sudden reorientations in psychiatry. The upheavals enveloping our most tradition-based institutions—education, religion, politics, law—will inevitably be experienced by medicine and particularly by psychiatry, with consequent challenging of roles, responsibilities, values, ethics, prerogatives and priorities. The current crop of medical students, forerunners (hopefully) of a generation which is less impressed with conventional wisdom than with adaptation to change and the plotting of future alternatives, will certainly find a broad enough spectrum of issues and challenges to encourage fulfilment of a diversity of professional and personal identities, should they choose Psychiatry as a career.

J. ROBERTSON UNWIN, M.D., M.Sc.

Editorials

Of all the medical specialties, Psychiatry is the one which most medical students are least willing to face and least prepared to deal with. This appears to be the combined fault of the student and the specialty itself. Most medical students are practical, conscientious and result-minded. At university they are trained to be hardboiled scientists and flexible clinicians. But emotional and intellectual disturbances do not lend themselves easily to measurement in milliequivalents and international units. The variables in human behaviour are multitudinous and the methods of analysis are groping. The many different schools of thought, the all-too-often vagueness of the terminology and diagnostic nomenclature, and the lower frequency of the therapeutic success as compared with the other branches of medicine make the practical mind skeptical, if not hostile, and the sympathetic mind frustrated, if still optimistic. The result may be the denial of psychiatric, especially emotional problems, altogether or an over-dependence on drugs—the modern medical cop-out.

In planning this issue, it became apparent that if there were rigid guidelines on topics and presentation the overall effect would have been less than adequate. Instead, writers were asked to pursue their particular interests. The result has been a variety of subjects which reflect the many facets of psychiatry itself.

This edition has been written not for didactic purposes, but rather for promoting and awakening interest in the mental health and well-being of the readers' future patients.

R.G. J.D.K.

Changes in this years volume have been at a minimum. Theme and features organization has been retained; however, a number of new features have been instituted. The symptomatology section will attempt to maintain a pathophysiologic emphasis in this years Journal, while Eponyms and The Men will entertain the minds of the more inquisitive. Assaeries is purely the product of the author's imagination in an attempt to lighten the mood of the Journal.

A.C. P.J.M.

Sexual Deviation: Pedophilia

J. D. Kempston 6T9

Sex is a word of vague definition, of increasing scope, and a purveyor of some of the most beautiful and ugly thoughts imaginable. As well as obstetrical and gynecological aspects, sex plays a large role in other medical specialities and a basic understanding of sex and sexuality, its ramifications and its influences on the lives of patients is a prerequisite for the total care of the individual. Morality is also involved in any discussion of sex; practitioners are well advised by texts, articles, and specialist consultation with most therapeutic problems; however, each physician must arrive at his own ethical code for dealing with the intricacies of philosophy, religion, and social conduct. Mass media incessantly exploit sexuality as a means of appealing to potential customers or adherents and increasing revenues through advertising for various commercial establishments. Slowly, but continually, the Victorian cloak of obstentatious propriety is being lifted from the shoulders of male and female. Regardless of this age of social enlightenment, there remains a tremendous ignorance among the general public and medical personnel alike regarding the sexual sphere of life. Inhibitions abound in the minds of doctor and patient; between medical students the only referral to sex seems to be via off-colour humour.

Sexual ignorance reflects badly on the medical profession and its ability to deal with patients. Doctors are well advised to read some authoritative work on sex before attempting patient consultation for sexual problems.

An aura of greater mystery and misunderstanding surrounds another facet of sexuality; that is sexual aberration or deviation. General practitioners are often the first authority to be advised of indecent assaults, child molesting, homosexual activity or other perversions performed on a victim. An offender may also seek medical help for his difficulty before legal restraints are encountered.

One of the more interesting and rapidly flourishing services provided by a sub-discipline of psychiatry is forensic psychiatry. Today, more of the judiciary are referring patients for pre-sentence psychiatric assessment and possible treatment of the criminal than in any previous era. It is interesting to note that sexual deviations, particularly those of pedophilia and exhibitionism constitute the bulk of forensic psychiatric court referrals.

As mentioned previously, a medical practitioner is often the first to be informed of a sexually assaulted victim or a sexually deviant offender and is expected to deal with this situation in a rational definitive manner. He can only do this by awareness of the deviation, its context and meaning, and its effects for offender and victim. In this article, normal sexual development is first discussed, then sexual deviations as a broad category, and finally the

deviation of pedophilia will be dealt with under its incidence, phenomenology, etiology and legal considerations.

A psychoanalytical view of normal maturation and sexuality may be reviewed as set forward by Freud in his "Three Essays on the Theory of Sexuality" in 1905, as yet to be negated and still useful in understanding aberrations of normal instinct.

Freud noted that the sex drive has an aim and an object, and he traced the development and progression of each in his theory.

The infant exhibits sexual impulses which were termed polymorphous in that these were the first unrefined stages in pleasure strivings, or libidinal development extended to the external world. The child is autoerotic and sensuous pleasures such as sucking, mouthing and skin sensation are gratifying to him. This is the oral stage.

At the end of the first year, pleasurable experiences are postulated to be around excretory functions such as the viewing or retention of urine or feces and in the exhibition of one's own or other person's body. Other pleasures such as obstinacy, passive domination of others, procrastination and other passive, aggressive or passive-aggressive attitudes and habits become apparent at this age. This is known as the anal stage.

At approximately three years of age, the child enters the phallic or genital stage and begins to experience pleasurable sensations in the genital region. The male child shows interest in his penis, his erections and derives pleasure from rubbing or manipulating his genitalia. Between three and six years all these libidinal strivings are directed towards parental figures wherein the male directs his strivings towards his mother, the Oedipus Complex; and the female child to her father, the Electra Complex. Accompanying these positive sexual feelings to the opposite parent are feelings of hate, jealousy, and aggression towards the parent of similar sex, denoting or amplifying ambivalence towards parental figures. It is extremely important that for normal future development, these complexes are resolved by repression into the subconscious with affection remaining between the child and opposite sex parent, and the identification with the same sex parent as a good and ideal figure. The motive for resolution of the Oedipal Complex is castration anxiety as the male child fears punishment by his father for sexual feelings to mother by removal of his phallus. To avoid this, a non-erotic attraction to mother is developed.

The female child develops penis-envy in which she feels the loss of a vital organ and desires to have it, and blames her mother for the loss. However, upon realization that her sexual urges towards father will not be satisfied she renounces them and identifies with mother.

SEXUAL DEVIATION: PEDOPHILIA

For six or seven years after this phallic stage, the sexual strivings remain in abeyance until puberty when they are again awakened. This six or seven year period is the latency stage. At puberty, the genital zone attains permanent erotic superiority over other zones.

Throughout development, deviations may occur because of retained complexes, fixation or regression to an earlier sexual phase. This abnormal activity may arise at any stage and continue into adulthood because of impulse strengthening for psychological or constitutional reasons.

An all encompassing definition of sexual deviation is particularly difficult to expound, primarily because of different cultural modes of sexual expression practiced in Canadian society and throughout the cultures of the world. Thompson in his excellent article on Sexual Deviations in 1959 attempted to define it as "any mode of sexual behaviour which interferes with the function of reproduction and in which the abnormal expression has preference over normal genital coitus." This seems the best definition to date to explain all abnormal sexual activity.

A working classification of sexual pathology may be arranged as follows:

ABNORMALITIES OF FREQUENCY AND INTENSITY OF DRIVE

A) *Excess Drive*

- i) nymphomania
- ii) satyriasis

These terms are defined as insatiable impulses to sexual gratification in women and men respectively.

B) *Psychophysiologic Disorders*

- i) frigidity in females
- ii) impotence in males

Both states are best defined not as sexual deviations, but rather as psychophysiological disorders because of their underlying etiology and somatic mechanism.

C) *Deviations of Mode of Gratification*

- i) Oral—This implies cunnilingus and fellatio
- ii) Ano-genital
- iii) Masturbation
- iv) Masochism, Sadism, Sado-masochism
- v) Transvestism
- vi) Voyeurism
- vii) Exhibitionism

Some of these terms do not necessarily constitute deviant acts and may be used as antecedent activity to normal genital coitus or in times of heterosexual deprivation. The deviation aspect occurs when this activity supercedes normal coitus in final preference of sexual activity as stated in the definition.

D) *Deviations of Sexual Object*

- i) Homosexuality
- ii) Pedophilia
- iii) Incest
- iv) Fetishism
- v) Bestiality

Homosexuality has received much attention from sociologists, psychiatrists and legislators. It is becoming a more accepted type of sexual deviation in our society as it was in early Greek civilization. Other less common deviations such as masochism or sadism are frequently referred to only in terms of poor attempts at humour by the general public possibly because of a misunderstanding of the terms involved. There are two sexual deviations which run afoul of the law and are relatively common in our society, namely pedophilia and exhibitionism which constitute two thirds of all sexual offences coming before a court. Therefore, these aberrations are of particular interest to the forensic psychiatrist. Pedophilia receives much attention and sensationalism by the news media when offences do occur, precipitating hate and disgust for the offender and sympathy for the victim. The medical practitioner and particularly the psychiatrist are now playing an ever increasing role in the incorporation of medical vocabulary and meaning in the formation and revision of legal statutes. He is obliged to know about such 'moral' offences and be able to rationally deal with victim or offender. The relative frequency of 'child molesting' appearing in court records may be deceptively low because many cases are resolved by the principals involved possibly with the aid of some professional help. For the above reasons, pedophilia will be discussed in detail.

PEDOPHILIA

I DEFINITION

Literally, the term means love of children, but for accurate definition the choice of victim and the nature of the act are important in delineating the offender. The word 'child' has been a difficult concept both clinically and legally with upper age limits ranging from twelve to twenty. Laws also vary in inclusiveness with regard to the victim's age and the nature of the act or offence. Pedophilia could best be defined as the expressed desire for immature sexual gratification with a pre-pubertal child. Immature gratification denotes a pre-phallic stage method of attaining gratification involving inspection, manipulation and fondling of the child's genitalia.

II INCIDENCE

Sexual offences constitute only 3.5 - 4.0 percent of all indictable offences, but in terms of offences against the individual, they constitute about 20 - 21 percent of the total cases. Pedophilia occurs as 20 percent of all reported sexually deviant acts, equal in incidence to exhibitionism

and about one half the incidence of clinically seen homosexuality.

III TYPES OF PEDOPHILIA

These are defined according to the sex of the child and are important from a phenomenological viewpoint. The types are: a) Homosexual Pedophilia, b) Heterosexual Pedophilia, c) Undifferentiated Pedophilia; in which children of both sexes are sought. However, in most cases the sex of the victim is fixed so that only a small proportion of offences fall into the latter group.

IV PHENOMENOLOGY

Three entities are necessary: A) Victim and Effects, B) Act, C) Offender.

A) *Victim*

The age of the victim in heterosexual pedophilia falls into the 6-11 year range with a sharp drop in incidence after this age, which helps in discriminating between pedophilic relations and post-pubertal sexual relations of adult males and young females. The homosexual victim variety shows a peak at 12 - 15 year age range which coincides with puberty and disallows accurate differentiation between adult and pedophilic homosexuality. The victims of undifferentiated pedophilia range from 4 - 7 years of age.

Contrary to popular opinion, the victim is seldom a stranger to the offender. In heterosexual activity 51 percent of victims were acquaintances and 30 percent were related to the offender. Only 19 percent were strangers. Casual associations were more prominent in the homosexual type and relationships were not as close.

The victims of the act may also derive pleasure from the sexual contact because they gain affection and approval from the offender and relieve inner guilt feelings by allowing themselves to be mistreated or punished. These children deriving this type of benefit are usually affectionally deprived themselves. It is of note that they have a strong need for affection and are out-going and flirtatious. Bender has described these children as being quite seductive in their modes of behaviour. Other children do not usually tolerate or participate in these acts.

The effects on the molested child depend greatly on the child's sense of security and emotional stability. The results of studies seem to show that early sexual experiences do not interfere with normal psychosexual maturation if other factors such as parental deprivation and home conflict are not involved. The parents' attitude may be of considerable importance. If anger and disgust are shown, the detrimental effects on the child may be long lasting.

The court appearance and cross-examination of the child may be the most seriously damaging aspect and this may prevent charges from being laid, fostering a de-

ceptively low incidence of pedophilia. Perhaps special child examiners could present court evidence for the child, obtained in a more supportive and protective setting and prevent this emotional trauma. This is the case in Israel. The Canadian law enforcement agencies realize that change is necessary for victim protection, however, it is felt by some that the inability to cross-examine constitutes an infringement of the defendant's legal rights.

B) *The Act*

i) Nature: Heterosexual acts consist mainly of fondling, manipulation, inspection and showing of genitalia which is not uncommon among pre-pubertal children and which may be termed immature gratification. This seems to indicate a psychosexual developmental failure, or a regression during stress to pre-genital pleasure strivings, or a modification of the sex drive in old age. Coitus is rare in heterosexual acts with children and similarly, other deviant acts such as sado-masochism and fetishism are rare except for exhibitionism which is significant in frequency.

Homosexual acts are similar to those of adult homosexuals being aggressive and orgasmic in nature and consisting mainly of fondling, fellatio and masturbation.

ii) Place: The act occurred at the home of the victim or offender in 60 percent of heterosexual acts, 35 percent of homosexual acts; in public places and in cars less frequently.

C) *Offender*

i) Groups: Studies show that the ages of offenders fall into three major groups: a) adolescence, b) mid-to-late 30's, c) mid-to-late 50's. This incidence applies to homosexual as well as heterosexual pedophiles.

The 30's group generally show severe mental and social maladjustment and frequently addictions to alcohol or drugs are complicating factors. This group of homosexual pedophiles showed previous adolescent homosexual activity and often these men were youth leaders in various organizations.

The most outstanding characteristic of the adolescent group is the retarded social maturation level manifested in virtually all cases. The senescent group is characterized by social and sexual isolation, impotence or the fear of it. The undifferentiated pedophile shows much greater psychosocial pathology and no specific age range is observed.

ii) General Personal Characteristics: The intelligence of the offender usually falls in the normal I.Q. range with some increase in number at the slightly lower levels, but essentially the range is similar to the general population. This tends to disprove the age-old hypothesis that sexual deviation is totally the outcome of mental deficiency or senescent deterioration. In education attained, 50 percent drop out between grades eight and ten and 25 percent drop out before grade eight, but this too is average for

the whole population. The employment records are unremarkable; the homosexual working mainly in business or service occupations and heterosexuals working generally at semi-skilled labour and industrial trades.

Social studies show the pedophilic homosexual to be very similar to adult homosexuals in autistic interests and hobbies; the heterosexuals being inclined to sports and manual hobbies. Most pedophiles are relatively isolated from adult social contact and most social activity was carried out with children in boys' clubs, youth work and church activities. Racial origin and religious grouping were of similar distribution to overall population.

iii) Family Structure: The heterosexual pedophile's family structure showed some differences from the "normal" family unit. The relationship with his father seemed to be severely lacking in contact; that is there was little association between them. In addition, the context of this relationship was neither positive or negative, meaning that there were no feelings of attraction or repulsion for him indicating no identification with his father as required for normal psychosexual development. Heterosexual pedophiles in particular saw father as a passive, inadequate, easily dominated figure, whereas the homosexual pedophiles were more aware of their father's presence, but ambivalent in their feelings towards him. The context of these relationships was positive or negative, but not absent as was the case of the heterosexual pedophile.

The heterosexual pedophile's feelings towards his mother showed that his strong dependency needs were satisfied and his mother was regarded as being close to him. However, there was little active interaction between them. The homosexual pedophile felt that a more positive understanding relationship existed between him and his mother. This attitude is seen among adult homosexuals as well. The undifferentiated pedophile had a poor relationship with both father and mother.

The offender usually marries later, a fact which may indicate his emotional immaturity. Often marriages of middle-aged heterosexual pedophiles show severe maladjustment, whereas the married homosexual pedophile shows indifference to the marriage situation.

V ETIOLOGY

a) Physical

- i) Previous brain damage
- ii) Active organic brain lesions producing behavioural changes, i.e. tumor, abscess, etc.
- iii) Mental deficiency
- iv) Senility
- v) Addictions to alcohol or drugs

This category includes any etiologic agent which has damaged or is impairing brain neuron function so that previously inhibited behaviour may be released leading to overt pedophilic acts.

b) Psychological

i) Diagnostic

Clinically, pedophilia associated with psychosis is rare: 6 - 7 percent of total cases in most studies and the incidence is of a similar magnitude for pedophilia associated with mental deficiency or organicity. However, the majority of pedophiles fall into the personality disorder classification with or without neurosis in addition to their primary disorder.*

ii) Psychodynamics

The pedophile avoids coitus with adults because of overwhelming castration anxiety. He is attracted to children who do not arouse this anxiety. His primary narcissism is gratified in the pedophilic act as he is identified with the infantile love object. He identifies with his frustrating mother, but unlike the homosexual who identifies with his mother's love for men, he is narcissistic rather than feminine and he behaves as he wishes his mother had behaved towards him, choosing love objects which remind him of himself.

As with other deviations, true genital enjoyment is blocked and the patient regresses to or is fixated at a form of infantile behaviour which gave him security, reassurance and gratification as a child. One type of sexual behaviour becomes predominant in his concept of gratification and hypertrophies in importance, aiding in the repression of other infantile modes of sexual expression.

c) Social Factors

This etiology is considered to be the most difficult to ascertain, owing possibly to the heterogeneity of the pedophilic population regarding race, religion and current social mores. The family structure and relationships between members previously described may contribute by thwarting or confirming patterns of identification with parental figures or peer groups. It is also possible to postulate that certain methods of sexual expression may have been condemned by parental opinion inhibiting sexual maturation.

The parents of pedophiles showed little ability to satisfy emotional needs and were often neglectful, severely punishing the child for relatively minor transgressions. The parents hindered the development of realistic trust and pride in the mastery of socially acceptable traits. The child learned to perceive and predict punishment instead of learning the stage of trust and self-involvement leading to normal psychosexual development.

The adolescent group showed poor maturation and little gratification of his strong dependency needs by his family. He had a poorly developed peer relationship leading to friendships among a younger age group.

*Ed. Note: Please refer to the American Psychiatric Association classification of abnormal behaviour.

The middle-aged group often showed a deteriorating family structure complicated often by addiction to drugs or alcohol and job frustrations. The marriage partner may inadvertently reinforce this aberrant behaviour by her own actions towards her husband. Her actions may threaten or manipulate him to the extent that latent behaviour becomes overt as an alternate outlet of sexual expression.

The senescent offender characterized by loneliness and frustration is driven to seek sexual relationships among children who are more approachable than adult sexual partners.

V LEGAL FACTORS

The laws governing sexual deviance still constitute a legal jungle in which lawyers and medical practitioners can both become lost. Relevant sections under the Criminal Code of Canada are Sections 135 to 164 in which the various indictable offences and summary convictions are innumerable. There is a growing need for change in this area which is recognized by the judiciary. Efforts are being made to incorporate medical terminology and concepts into a legal framework to facilitate better understanding of rehabilitation possibilities for the offender and to offer greater protection and comfort to the victim.

As explained previously, most offences are non-coital in nature and are usually dealt with in lower courts, the usual charge being Indecent Assault (Section 141) or Contributing to Juvenile Delinquency. These two charges cover 60 - 70 percent of pedophilic cases coming to trial. Homicide resulting from pedophilic offences is rare, but may occur. On the whole, this group is no more homicidal than any other population group. Similarly, the incidence of Forceful Rape (Section 135) or Intercourse with Children (Section 138) is also rare, but the incidence of these charges increases with the increasing age of the child.

The rate of recidivism is low for all sexual offences compared with other crimes and ranges between 10 - 20 percent on various studies. However, the incidence rapidly increases with the number of convictions, that is, the greater the number of previous convictions, the greater the probability that the act will recur. In medical terms, as this mode of sexual expression becomes more stable and fixed in the individual, a change in sexual object or cure of his deviant tendencies becomes more unlikely.

VI TREATMENT

a) *Medical*

i) *Drug Therapy*: The drug treatment consists primarily of phenothiazine tranquilizers which help control compulsive and irrational behaviour. In addition, some of these compounds have an anti-libido effect on certain patients which may aid in controlling sexual urges.

Hormone treatment with male or female hormone compounds, if anything, increases libido and are not used now. Other symptomatic measures may be taken as symptoms of depression, etc. arise.

ii) *Mechanical—Electroshock*: This method is used infrequently to control pedophilic behaviour. It may be of use in a psychosis with pedophilia unresponsive or minimally so to drug therapy. The electroshock would aid in control of the psychosis and thus would subdue pedophilic urges arising out of psychosis.

b) *Surgical*

The surgical treatment was castration, however, this is very infrequently practiced now.

c) *Psychological*

Of primary importance in treatment is the motivation of the patient for change, which may be high or low, depending on whether the deviance is ego-syntonic or ego-dystonic respectively. Encouragement and development of motivation are very essential prerequisites for adequate treatment. The main methods used are:

i) *Individual psychotherapy* in which the history is taken and elaborated on in subsequent interviews by probing areas of the patient's past history, his feelings and frustrations. The patient should develop a positive transference towards the therapist, allowing repressed feelings to be brought out in an atmosphere of trust and to understand and acquire insight into the origin of his present difficulties.

ii) *Group therapy*: This is a valuable adjunct to individual therapy or by itself as the only form of treatment. Patients are arranged in a group situation with other pedophiles or various types of psychiatric patients and allowed to talk freely of their difficulties and gain support and acceptance by the group. The patient will realize that he is not alone with his problem and may be relieved of his despair and depressions by achieving a good rapport with other group members. In addition, group therapy may help develop motivation to change for those in whom the deviance is ego-syntonic.

iii) *Behaviour therapy*: This may be used with or without the above two therapeutic endeavours. There are two main types used now. The first is Aversive Conditioning in which the subject is seated in a chair and electrodes are placed on his extremities and he is shocked when pedophilic slides are shown. He may avoid the shock if he wishes and the shock or his avoidance of it is followed by a slide of a more suitable love object which seems even more attractive to him because the shock stimulus is stopped. A phobia against pedophilic urge and a more positive feeling for suitable sex objects is encouraged.

The second type of behaviour therapy is a desensitization technique to overcome an anxiety response to heterosexual stimuli. The technique employs conscious deep

muscle relaxation in the presence of anxiety provoking stimuli and with succeeding treatments the degree of relaxation is increased and heterosexual phobias are eliminated. This technique may be followed by a pedophilic aversive conditioning programme once the anxiety response to a suitable love object is lessened.

RESULTS

Objective studies with these techniques have reported variable success with each method. Comparison of the different treatments is difficult because each individual case is different in its psychodynamics and origins and will react more favourably to one method than another.

The best data is derived from court records where the reconviction rate for all sexual offences is 15 percent. Five to eight percent of heterosexual pedophiles repeat their offence after their first conviction. The middle-aged

heterosexual pedophile shows a slightly greater recidivism rate than this and the senescent pedophile, a slightly decreased reconviction rate. Homosexual offenders' rates of reconviction are twice those of heterosexual pedophiles.

In conclusion, the phenomenology and psychology of pedophilia have been elaborated at length, for the purpose of awakening in the practicing physician an awareness of a common and often traumatic experience encountered in early life by some of our younger patients.

ACKNOWLEDGEMENT

I would like to express my appreciation to Drs. E. Persad and E. Mandryk of the Clarke Institute of Psychiatry for their aid in the preparation of this paper.

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May be obtained by direct request from the author.

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As future doctors we are committed to the preservation of life and the relief of suffering. It goes without saying that we want to preserve life against death and relieve the suffering that heralds death. Death is larger than life, but for all its awesome finality we are told next to nothing about it in our training. Perhaps this is a reflection of our personal fears and cultural attitudes towards death and dying. Our language and customs masquerade our feelings. We speak of "passing on" and "the dear departed". Our funerals are luxurious and efficient, and our religion creates meaning where there is no knowledge. Professionally, also, we deny and minimize death. The grim humour of the anatomy lab is passed on from year to year. In pathology we stick mechanically to physical description and process. We even describe diseased organs in terms of food, the sustenance of life. And in the clinic we examine a dying patient efficiently but uneasily. For most of our academic and professional careers death is a foreign body. As an emotional event, a part of life, it goes unspoken.

Now that modern medicine has increased longevity largely by making chronic disease more chronic, the languishing patient, especially the one dying in hospital, is an ever-increasing fact of our professional work. So that we can better manage ourselves, our staff and our patient we need to know more about the meaning of death and the feelings in and around the dying person. While the former matter occupies a large place in religion and philosophy the latter rests solidly in medicine. A full discussion would include subjects such as suicide, mourning, preoperative fear of dying, pathological fear of death, depression, organ transplants, renal dialysis and euthanasia. The following discussion will limit itself to the patient dying slowly from terminal disease, under the headings

- 1) General psychological theory (thanatology)
- 2) Attitudes toward death and dying
 - (a) culture specific
 - (b) role specific
- 3) Management

1) THANATOLOGY

Death has received little attention from psychology. Freud's original thinking is still the most unified, but his attempt to conceptualize death on a model of nineteenth-century physics and biology did not prove as fruitful as his other theorizing, and remains to this day the weakest part of his psychology.

Freud's main contribution was the postulation of a death instinct, a biological force with its aim the restoration of organic animate matter to its opposite original state. The life instincts (hunger, sex) co-operate to oppose the death instinct and for most of life are strong enough to contain it. The death instinct is strongest at birth, when the life instincts are weakest and the ego has

not yet formed and integrated them, and at death when the libido fails and the ego structure begins to dissolve. Between these times death is merely an "avoidable accident" due to external or internal causes. Biologically, the soma cells represent the battlefield which ultimately yields to death. The germ cells represent life, which continues only in the species as replenished through its individuals.

The death instinct does not include a conscious or unconscious wish to die, but rather a wish to kill. For the sake of survival, this must be channelled out to the environment and therefore shows up clinically as aggression, hostility, destructiveness and sadism. In times of war the massive socializing forces restraining the death instinct are temporarily relieved, and man returns to his more aggressive animalistic state. One may say that if peace could ever be achieved at length, war might have to be reinvented. If medicine ever achieved immortality, death might have to be rediscovered.

2) ATTITUDES TOWARD DEATH AND DYING

(a) culture specific

Whatever the weaknesses of Freud's general death theory are, his clinical observations on the individual level were more meaningful. Although man can think of death abstractly, he cannot imagine what it is like to be dead. (According to the general theory, this might be because imagining death would weaken the ego and strengthen the death instinct. In contrast, man can imagine eternal life and has even institutionalized it in religion.) When he tries to conceive it, he takes the position of an onlooker. The notion, "I am dead" is a paradox, for the "I am" is a continuance of living. It has even been noted that in death fantasies there is not only a continuity of life's problems but also a successful resolution²⁰. Freud was the first to point out that in the individual unconscious man is convinced of his own immortality⁶ and that this is why death is subjectively inconceivable to him. Why then, is he afraid of it? What is the fear and where does it arise? The genesis of the conviction of immortality, the fear of death, and the connection between them were left to the child psychologists to elucidate.

Before going on, however, we should distinguish fear of *death* from fear of *the dying process*. The latter is a fear of progressive bodily or mental disintegration, the fear that one will not be able to think or act as he is used to. It may be acute, as in acute anxiety, or chronic, resulting from the accumulation of life's losses, lost hopes and the infirmities of old age. Fear of dying may be more frightening than death itself or not frightening at all. Condemned men often attempt suicide to avoid awaiting execution, while some patients face dying and death seemingly unperturbed²⁰. Obviously, fear of dying is a rational fear based on a real, ongoing process. Fear of death, however, is rational only in the sense that it is an

event that may deprive one of life's realizable goals or loved persons. Fear of death in and by itself, though, is irrational. It is really a fear of all the meanings a culture has given to an unknown condition, and as such, takes on the clinical characteristics of a phobia. Death becomes a tablet onto which other cultural fears make their mark, as we shall presently see.

Fear of death begins in childhood in the conflict between the demands of the external world and the wishes of the child's world, and is affected by two processes. The first is his magical way of connecting cause and effect. The child reasons by the Law of Talion; i.e., to think a thing is to do that thing. Thus, if the world gives him something he wants, then he caused it. Conversely, if he has hostile, destructive wishes against the environment, these will take effect. The second process is the positive identification in the normal, loved child with his parents' capability and strength. The overall result is that the child comes to believe in his own invincibility and immortality. Nothing can destroy him. But then the process of socialization comes along, and with it, punishment and frustration. His response is to reverse the frustrating act; and since he personifies motivation (bad events come from bad people), he develops a wish to bannish his socializers. Death at this time is only a temporary event to him and becomes easily equated with bannishment. Therefore, by the Law, to wish his socializers bannished is to make them dead. However, his socializers include people he loves and needs for his own survival, so magically he undoes their death. (This is a process familiar to the child's phantasy life. Killing and coming alive again are universal elements of fairy tales and children's games e.g. cops and robbers, cowboys and Indians.) As long as death is temporary and reversible and the child is in control there is no guilt or fear. Soon, however, he must learn that death is final and irreversible, and that he is no longer at the helm. The Law of Talion reveals its converse—to do a thing is to ensure an equal punishment to the self. What applies to others applies to himself; what he wishes toward others can be wished against himself. Invincibility brings responsibility; hostile wishes bring guilt. As a result, the wish to make others die and the fear of it is turned into the possibility of his own death and the fear of that.

Thus, childhood fear of death starts out as a fear of punishment. Later, during the Oedipal stage, punishment becomes castration. By the time adulthood is reached other anxieties and obsessions are added—loneliness, rejection, suffering, dependency, guilt all become components of the death phobia. These exist in the adult unconscious and are the basis of normal feelings and emergent pathological states e.g. morbid fear of death, and overwhelming excitement (e.g. orgasm) or panic, in which fear of death is connected with loss of one's ego and becomes a threat to one's unconscious phantasy of invincibility and immortality.⁵

The childhood fear of death is further modified by culture. Death is seen as unnatural and carries the impli-

cation of force, i.e. the result of disease or accident. Cancer and heart disease are "killers". The punitive aspect is reflected in religious belief—Christianity can be construed to view sickness and death as the wages of sin. Death is in our day what sex was in Freud's. Parents may by now have learned answers to the child's query "Where did I come from?" but are still flustered about "Where will I go to?" and their confusion does not go unescaped. (Perhaps one day there will be books on "What to Tell Your Children About Death".)

Finally, fear of death is only one of several attitudes toward the event, although the most universal. Suicide may be a way of unconsciously defying a surrender to death, solving an environmental crisis, or finding re-union with an ambivalently loved person. Death may be consciously regarded as the appropriate resolution of a long conflict, reunion with a lost love, or a respite from anguish. Most admirably, it may be encountered serenely with philosophical or religious understanding as the meaningful fulfillment of life.

(b) *role specific*

Whereas the foregoing applies to *death*, there are specific attitudes to *dying* reflected by the roles played by the people at the death-bed: the doctor, the nurses, the family, and the dying patient himself. To these people the doctor must act as teacher, healer, comforter, supporter and co-ordinator. The doctor is head of the treatment team, but too often he abdicates his role when his patient is dying, and the interns or nurses, the people most inexperienced or uncounselled, have to tend to the dying man's needs. Before the doctor can begin his management he should be aware of the feelings and reactions of all involved.

If the doctor is to be effective in his work a certain amount of denial of death and desensitization to dying is normal and appropriate. However, the general lack of discussion of the subject, the flipant manner of medical students and even of some teachers in the academic years, the neglect of the terminal patient on the hospital wards, even the interns' annoyance at filling out death certificates together indicate the excessive denial of this fact of life and the anxiety it arouses in the medical man. To the doctor, the dying patient is a bad patient. Unconsciously he experiences the lack of response to therapy as a threat to his self-esteem, potency, and need for love. There is a mutual dependence between doctor and patient. The inability of the latter to return his share is felt as rejection and invites the same: "If he doesn't need me, I don't need him." The doctor may abandon his patient for another whom he can "help" or may go to the other extreme—heroic measures in an attempt to live up to his unconscious fantasy of curing all sickness. Or he may become grief-stricken and wallow in the guilt and worry of not having tried hard enough. The latter is especially true for those "special patients" (e.g. leukemic children) with whom the doctor has established a particularly close



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relationship. The doctor who matures in his profession will have to learn to avoid these excessive reactions, to disbelieve in his own myth, and accept death not as defeat but as a chance to give life meaning.

The nurses are affected by the doctor's attitude and the conditions of their work. They are caught in a conflict between "recovery care" and "comfort-until-death care", especially when the doctor has not made it clear which is to prevail. Nurses will resent being left as the sole support. They will be frustrated by the lack of continuity of contact that shift-work imposes. The patient may try to find out information contrary to the doctor's wishes, and the family may interfere with management and upset the patient's mood. Under stress, the nurses will avoid the patient, attempt a rigid control of conversation or act overly cheerful. However, with the doctor's support, they should be able to both deny their anxiety and still carry out their work effectively.

The family will probably be ambivalent toward the dying relative. Mixed with real concern, sorrow, grief, fear and loyalty will be feelings of guilt at not having been a "good enough" son or daughter or at wanting to get the whole thing over-with. Relatives may converse with other patients or crowd the halls, rationalizing that they do not want to disturb. They may annoy the hospital staff and the doctor by frequent demands for explanations. They may upset the patient by being over-emotional or by cutting off contact altogether at the very time he needs it most.

Lastly, what of the patient himself? The one who faces death with equanimity has already been mentioned. He is rare. For most people dying implies pain, mental deterioration, a loss of body image and sense of wholeness. Our culture expects courage and dignity but shows squeamishness and disgust. At a time when the dying person is forced to depend on other people they may cut him off from feeling human and thereby enhance his feelings of shame, guilt, loss of dignity, estrangement, isolation, and abandonment.

Patients are usually aware of their impending death by their bodily sensations or the cues others give by word or manner. This knowledge provides the basis for an "anticipatory grief reaction"^{1 12} felt by the patient over the expected loss of loved ones, and is similar to the grief they feel toward him. The reaction is characterized by somatic distress, guilty feelings, pre-occupation with memories of loved ones, anger, and slowed activity. The duration depends on the patient's ability to replace the losses and resolve the ambivalent feelings toward those loved—a hard task, for the fear of death and the inability to replace the losses permanently as the living do aggravates the grief work. A patient who succumbs to the stress may show regressive or inappropriate behaviour, psychotic depression, paranoid thoughts or suicidal rumination.

It has been said that patients die as they lived, but usually the approach to death is accompanied by a dissolution of libidinal ties, a gradual withdrawal from people and the concerns of living. As Cappon puts it, "mercifully, a psychic death precedes a somatic death"³.

3) MANAGEMENT

The doctor who is aware of the emotional climate of death and dying is less likely to regard his patient as merely a biological entity, and can direct his attention more fully to his somatic and emotional needs. Primarily, the doctor should try to keep his patient comfortable and composed, and bolster his failing sense of being a person.

The first problem is whether, when, and how to tell a patient of his fatal illness. The doctor should never assume a patient does not want to be told. The dying person is usually aware of approaching death and would be prepared to discuss it freely if the doctor also were willing. The family might object, but this is usually due to its own ambivalent feelings toward the dying relative or a projection of its own death anxiety e.g. the common fear that telling will induce insanity. The doctor should endeavour to dispel irrational fears and relieve the ambivalence by assuming all responsibility for telling, but should the family be adamant, he should yield. The doctor should also consider whether the patient himself wants to know and this can be inferred from his questions and mood. Can the patient handle the stress of knowing? How has he responded to emotional stress in the past? Will his organic deterioration be accelerated? These are points to bear in mind. Even if the patient himself asks, this does not mean he wants to know everything. The wisest step for the doctor is to tell frankly the facts of the disease but couch the words so that the patient can either accept or deny death as he wishes e.g. "We have found a tumour which we think is malignant, but our opinions vary. In any case we think we have removed all of it." Observing the patient's reactions, the doctor should know how to proceed, to cover anxiety by denial, or to relieve it by discussion. It would be helpful to keep in mind the time element. If denial is to be encouraged, emphasis should be on the present and future. Hope can be kept alive by frequent discussions of therapeutic procedures and their optimistic outlook: "You should expect to get worse before you get better." Attention should be given to minor problems such as bedsores, rashes and drug side-effects, but over-indulgence by doctors and nurses is to be avoided. The doctor should visit regularly and give verbal support and also physical contact such as a simple handshake or reassuring pat on the back. Relief of pain and discomfort should be a major concern but the patient should not be drugged out of reality. Relaxation exercises and hypnotherapy may help. All therapy can be a point of discussion for doctors, nurses and physio-therapists in order to engage the patient in the present. The doctor should select one family member as a liaison with the rest so that all are informed of what is happening and what is planned. The family should visit regularly and be counselled not to be over-emotional or too distant. If a clergyman is requested he also should be informed of the treatment plan. The simple thought that until a man is dead he is alive should be enough to keep the hospital staff aware of the patient's needs.

If the patient is willing to discuss his imminent death, the doctor's role becomes more of a physician-psychiatrist. Always sensitive to the level of anxiety in order to avoid bringing on psychopathology, the doctor will begin to discuss the patient's life with him in terms of past goals and present accomplishments. The aim is to make death an event that gives life meaning. If the patient can be shown that he has fulfilled his aims and expectations under the particular circumstances of his life, all has been accomplished and there is nothing left to live for. Any specific personality problems can be dealt with psychotherapeutically in the direction of support and limited insight. One will see that death can be an appropriate resolution of life's problems, not a catastrophe which reduces a person's value to zero.

Theoretically, and ideally, what the effective doctor does is support the patient's belief in his own immortality and potency. As the life instincts succumb to the death instinct the doctor fills in the gap with a gift of his own sublimated love, or simply, affection. He takes advantage of the minor regression and dissolution of ego structure preceding death to reform a new and stronger one which gives depth and scope to a man's life in his last moments. The sense of isolation, abandonment and devaluation is alleviated first by the positive identification with the doctor, a powerful supporting, loving, living figure; and second, by the emphasis on love-ties, as the patient wishes to see them, with people still living and, through memories, with those already dead.

Thus, the doctor assists the patient's grief work by helping to restore life's losses as they are being lost. Nevertheless, he should beware that he not allow his own sorrow and pity to fall to grief and despair, for then, he, the family and the patient become mired in helplessness. Only by suppressing his own grief will the doctor be able to support both the patient as he is fading from life, and the family as it is mourning life's loss.

It has been said that the purpose of living is to create a world in which we would be willing to die. The doctor who helps create this world is fulfilling the final function of his art.

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For decades, the prevalent social attitude toward homosexuality has been misunderstanding and contempt, reinforced by many punitive measures. Today there is an increasing interest in homosexuality evidenced by the number of papers on the subject and by public recognition of and concern for homosexuality as a social problem. The importance of the role of all physicians in understanding this problem has prompted the following consideration of its aetiology, dynamics, clinical picture, and treatment.

DEFINITION

The term homosexual is derived from the Greek prefix homo, meaning "the same as" and not as many people suppose, from the Latin word for man. Thus, linguistically, "homosexuality" means "sex directed to the same sex." It is therefore an appropriate word to describe erotic love between two persons of the same sex, whether they be male or female. The words "lesbian" and "sapphic" are sometimes used to describe sexual relationships between women. This refers to the fact that the Greek poetess Sappho, who lived on the island of Lesbos, was herself homosexual.

Definitions in psychiatry, as in science generally, tend to reflect individual conceptualizations about the subject in question. Generally, homosexuality is defined as an adaptation characterized by sexual behaviour between members of the same sex. More precisely, it is defined as overt sexual behaviour in which the individual male or female habitually seeks and attains orgasm by means of sexual contact with a member of the same sex over a period of years, because of choice or preference for a sexual partner of the same sex, though this is not an exclusive choice. (A single sexual act with the same sex does not necessarily constitute homosexuality because the incidence of this is likely to be high enough in the population at large to consider the occasional homosexual act, in youth, as normal.) Homosexuality thus is defined as a pathological form of sexual behaviour.

Kinsey attempted to solve the theoretical and methodological problem of definition by rating the extent of homosexual activity than by designating the respondent as a homosexual or a heterosexual.

- 0—Exclusively heterosexual with no homosexual activity
- 1—Predominantly heterosexual, only incidental homosexual activity
- 2—Predominantly heterosexual, but more than incidental homosexual activity
- 3—Equally heterosexual and homosexual
- 4—Predominantly homosexual, but more than incidental heterosexual activity

- 5—Predominantly homosexual but incidental heterosexual activity
- 6—Exclusively homosexual

INCIDENCE

Although homosexuality existed in ancient civilizations and is found throughout modern society, it seems to have been absent or rare in some cultures in the past, and there is little or no evidence of it in certain present-day societies. The incidence in Canada and the United States is unknown. Because of the disgrace associated with inversion, accurate statistics are difficult, if not impossible to obtain.

Whatever doubt there may be about the procedure of the Kinsey studies and some of their conclusions, there is no question that the data they present is the best for the limited studies presented thus far. According to their findings, about 4% of white adult males remain exclusively homosexual after adolescence, and about 10% are "more or less exclusively homosexual for at least 3 years between the ages of 16 and 25." At least 37% of the total male population of the U.S. was reported to have had overt homosexual experiences with or without orgasmic culmination at some time between puberty and old age. In preadolescence the incidence of homosexual genital play was reported as 48% and this percentage increased if nongenital activity was included.

There is wider divergence in estimates of female than of male homosexual prevalence. Kinsey found that among females the incidence of overt contact to the point of orgasm was 13% and that the accumulative incidences of homosexual response was 28%. This means that the homosexual responses had occurred in about half as many females as males and contacts leading to orgasm in about one-third as many females as males. There is some question as to how representative Kinsey's samples of the female population were. Until systematic studies of a more representative population are completed estimates of prevalence are but guesses. Since the female homosexual is prosecuted by law in only a few countries, it tends to excite less comment than male homosexuality.

Kinsey's definition of homosexuality is very broad. Behaviour such as group sexual experimentation is not necessarily homosexual; therefore, if homosexuality is loosely defined, the high incidence of behaviour reported as homosexuality may be inflated. This information has to be seen in the perspective of the complete findings, namely, that only 4% of their study population was exclusively homosexual and that the actual frequency of homosexual acts in the population compared with heterosexual ones was extremely small.

In studies of the American Armed Forces during World War II, 10 million men were involved; they ranged in age from 18-45 and over. In total, about 1% of these men were officially identified as homosexual and it was estimated that another 1% were not identified.

Clearly, homosexuality is relatively uncommon, but since the behaviour of overt homosexuals is highly stylized and frequently exhibitionistic, there is often an over-estimation of its prevalence.

Inversion (change from heterosexuality to homosexuality for periods of time) is widely distributed and cuts across caste and class lines. There seems to be some underrepresentation among Jews in the U.S., but whether second or third generation Americans are less affected than the general population remains to be determined. Homosexuality appears to be over-represented in occupations such as acting, dancing, and hairdressing, but in general it is not restricted to any occupation.

AETIOLOGY

I. BIOLOGICAL

a) *Physical theories*

All the studies of body measurement and body types have been contradictory and have not been substantiated by further investigations. Many varieties of physical body types are seen in homosexuals as with heterosexuals.

b) *Hormone theories*

Investigations of hormone balances have not succeeded in showing a convincing relationship between various hormone levels and homosexuality. There is no significant difference between the ketosteroid output of homosexuals and normal males.

c) *Genetic theories*

Early theories were based on the assumption that there is a universal bisexuality, and based on heredity, the accentuation of the feminine component was seen among male homosexuals. However, it has been determined that in the normal organism bisexuality is a fiction. Sex is clearly differentiated at the moment of conception by the XX and XY chromosomal pattern. Chromosomal examinations reveal homosexuals to be biologically normal males.

Support for hereditary theories has come from studies of sibling ratios and twin studies. Kallman found that in male identical twins there was a concordance ratio of 100 in the homosexual traits of both twins. Among brothers of 27 homosexual dizygotic twins only 3 had a Kinsey rating of 3 to 6. This has not been supported by other studies, and discordant monozygotic twins have also been reported. The fact that monozygotic twins are genetically similar does not mean that if they develop similar complex patterns of behaviour, these patterns are, therefore, genetically determined. The possibility that each twin is exposed to similar social influences must be con-

sidered. The genetic basis however, is still unclear and requires further investigation.

II. FREUDIAN THEORY

Freud's conceptualizations about the aetiology of male homosexuality combined biogenetic and psychosocial hypotheses. He accepted the bisexual theory of his day. He also felt that homosexuality could be a pathological condition resulting from an abnormal experience within the family. He described homosexuals as having had an intense erotic attachment to their mother during childhood "which was evoked and encouraged by too much tenderness on the part of the mother herself and further reinforced by the small role played by the father."

III. PSYCHO-SOCIAL

West states "the realistic viewpoint accepts homosexuality as a universal potentiality that may develop in response to a wide variety of factors. Neurotic fears of sex, disappointment in love, an all male background, guilt about women; all these may contribute and tip the scales towards a homosexual development."

Psychological and social factors are best examined together, since today major stress is laid on the parent-child relationship. The interpretation of the child-parent relationship factor depends largely on the psychological theory one adheres to. It can be explained on psycho-analytical grounds, learning theory, and conditioning theory. In psychoanalytical treatment the association between adverse intrafamilial influences and homosexuality has been demonstrated.

The modal type of mother of the homosexual is overly close, overly intimate, possessive, and dominating; she is overprotective as well as emasculating. She spends a great deal of time with her son and generally favours him over other siblings from childhood on. She encourages an alliance against the father and frequently prefers her son to her husband. She interferes with her son's heterosexual interests in childhood and adolescence, yet she herself tends to be seductive with him. Overly concerned about illness and physical injury, she babies him and hinders his participation in normal activities. In other words, she is castrating. In some cases the mother and son occupy the same bed into the boy's adolescence and the mother exhibitionistically shows her nudity. In some cases the mother is detached, rejecting, and overtly hostile.

The father is usually detached, unaffectionate, and hostile to his son. In most cases, he spends very little time with his son. Often, the homosexual hates and fears his father, and lacks respect and admiration for him. Not one father in one study was classified as a warmly related, constructive parent. In these cases there are unconscious but unremitting attempts to extinguish the son's heterosexuality.

The adhesive tie between mother and son promotes intense rivalry and murderous feelings in the boy towards

his father. Fear of retaliation gives rise to irrational fears of father. The boy is not only deprived of realistic needs for paternal security and protection but is denied an admired, loved figure for masculine identification. The son becomes attached to his mother and intensely hostile to his father.

As bisocial development proceeds, fears of heterosexuality inhibit him in his relationships with girls. Unconsciously he fears girls who he identifies with his castrating mother. He also fears attack from a male competitor. This illustrates his lack of confidence in his own masculinity.

Masculine strength and power are eroticized and symbolized by the large penis, physical size, prowess and other characteristics associated with masculine power such as money, prestige, and intellect.

In the homosexual act and relationship, a variety of needs are acted out. These include human contact, sexual gratifications, and an attempt to rehabilitate a sense of damaged masculinity. He has chosen homosexuality, as heterosexual adaptation has proven to be difficult.

Homosexuality is, in part, a heterosexual masquerade in which multiple role behaviours are enacted. In oral intercourse, the insertor is masculine and the insertee is feminine. The anus is equated with the vagina by both partners. Similar role behaviours imitative of heterosexuality may be acted out in oral activity.

Homosexuality then permits itself as an alternative adjustment, a halfway refuge for those who find heterosexual life too difficult.

In female homosexuality the causality follows the same general line of thought as for male homosexuality. The empirical and clinical evidence of the influence of parents on a daughter's adaptation is as significant as for the male homosexual. The mother is often ambivalent but more often hostile and competitive. Father then enhances the daughter's femininity and mother defeminizes it. The mother discourages any closeness with the father, even contact. She also interferes with heterosexual peer relationships. The decisive pathogenic factor may be a too intense attachment to the father, thus forcing a retreat from feared incestuous impulses. It can also result from fatherly seduction or rejection. Other characteristics of the mother include sexual competitiveness with women, preference of sons to daughters, and rivalry with daughters for males. The mother essentially castrates the daughters. Other mothers interfere because they need their daughter for a companion and fear losing her to a male.

The fathers are usually submissive to their wives and fail to come into an appropriate affectionate and protective relationship with their daughters. Fathers who are strong figures in the family and who are openly affectionate and masculine with their daughters do not produce

lesbians. It is unlikely that an affectionate mother who encourages daughter's femininity will produce a lesbian.

CLINICAL IMPRESSION AND DIAGNOSIS

Clearly, an assessment of homosexual propensities is easier to make for an older person who already has a considerable sexual history. The younger a person is, the more cautiously one has to proceed, partly because there is a lack of history, but partly also because the homosexual response pattern predominates in early adolescence but then decreases and is largely overtaken by the heterosexual response pattern.

If in addition one considers the spread in psycho-social maturation of individuals, one can appreciate that clinically any fixed diagnosis, especially of exclusive homosexuality, is not warranted before the early twenties. This is not to say that acts and fantasies should be ignored before this time; but only that they should be seen in relation to the developmental stage of the child or adolescent. Few people who show homosexual propensities in early adolescence remain, or become, predominantly homosexual.

There exist two main groups of homosexuals. In the first, the life style is homosexual. Social relationships are had with other homosexuals with the possible exception of family members and a few close heterosexual friends. The other group lives in the heterosexual world. They are usually married, have children, and superficially are seen to conform to heterosexual standards. Homosexual acts are carried out in secrecy.

Many in the first group do not conform to the popular effeminate stereotype (only 10-15%). They are largely of the opinion that they can distinguish themselves by a cue or signalling system. For obvious reasons, few homosexuals are unconcerned about being exposed and most successfully conceal their condition.

Homosexuals usually live in an urban subculture within the larger society. This subculture is stratified. A small elite with power and prestige make no contact with the visible homosexual world. Many are upwardly mobile. To give voice to their aspirations and needs, national organizations have grown up. They attempt to improve the public image, to protect themselves from persecution and discrimination and to give themselves a sense of personal dignity; but they are not oriented toward helping their members change their pathological pattern.

They tend to affiliate themselves with the homosexual world to find fulfillment of social, emotional, romantic and sexual needs. The sought fulfillment is living happily with a homosexual mate in an analogue of heterosexual marriage. Few realize this wish. These romances run a stereotype course. Passionate beginnings are followed by episodic phases of turbulence and fade into anger before ending.

The unattached homosexual is for the most part a lonely hunter, seeking sexual satisfaction where he can find it. The chronic frustration of romantic longings spurs him into restless behaviour common to most homosexuals which they express in a frantic pursuit of excitement and pleasure epitomized in the phrase "the gay life". The prowling for new partners exposes them to dangers: robbery, beatings, blackmail, and venereal disease.

The activity of a bisexual may be a compulsive outburst during a stressful situation. Such men are called "closet queens". These men are usually sexually inadequate as husbands.

Homosexuals are more preoccupied with sex than are heterosexuals. They begin sexual practices earlier and are more active in preadolescence, adolescence, and adulthood. Some flaunt their sexual preference, alleging that they belong to a select group which is especially distinguished for sensitivity and creative ability.

Most commonly, homosexual practices involve kissing, caressing and mutual masturbation. The mouth and anus as sexual orifices usually become part of the pattern. There is no correlation between appearance and social behaviour and preferred sexual practices.

The most popular choice of homosexual partner is the masculine type. A large penis is a highly valued and sought as the ultimate in masculine symbolism. Emphasis is also placed on beauty of the figure and muscular development.

Despite an apparent disinterest in and aversion to heterosexual intercourse, most homosexuals are not sexually responsive in their own act. This applies also to those who are exclusively homosexual. If the heterosexual threat is neutralized by a woman's sexual unavailability because of marriage, advanced age, etc. homosexual men may be affectionate, charming and subtly seductive.

Many heterosexual patients report one or more of the following symptoms: fears about becoming homosexual, fantasies of homosexual activity, impulses to perform homosexual acts, compulsions to look at men's genitals, dreams of homosexual content, reactions of fear or disgust toward homosexuality, anxiety and feelings of uneasiness when in the presence of homosexuals, homosexual episodes in childhood and adolescence, and desires to be a woman. These latent homosexual trends share aetiological features with the entrenched mechanisms of homosexuals. The absence of erotic responsivity to males is the distinguishing feature of overt homosexuals from heterosexuals with such trends.

Treatment of these patients involves helping them to resolve irrational fears of male competition and to delineate those experiences in life that give rise to fears.

TREATMENT

Major approaches are early detection of homosexual tendencies and public education on the subject.

Most pre-homosexual children exhibit characteristic problems and behaviour. They are fearful of physical injury, avoid scrambles of normal boys. Usually they are isolates who avoid competitive sports and a minority have effeminate gestures. When a child presents such a picture, a psychiatric examination is indicated. If a homosexual pattern is identified psychotherapy for the child and parents is a possible choice of treatment.

Adolescent boys who consciously avoid girls, who do not develop a crush on a girl or who may already sense in themselves homosexual tendencies are candidates for treatment as well as parents.

The treatment of females is similar to males except for early detection criteria. Tomboyishness is not necessarily an indicator of lesbian tendencies. Girls who show strong preferences for masculine dress or who habitually avoid more typically feminine attire and pursuits are at least showing homosexual tendencies. If a girl who has no heterosexual crushes or fantasies, avoids dating and shuns boys is having sexual difficulties, consultation is required.

The main targets for prophylactic education are the parents, clergy, physicians and educators. They are in the position to detect and guide young people into the correct channels.

The treatment of adult homosexuality is highly controversial. The question of treatment should be raised in terms of the problem it presents in particular cases.

Organic methods are ineffective in terms of change, and while castration or hormonal treatment may influence the intensity of the drive, they will not alter its direction.

In one study of 100 male homosexuals treated psychoanalytically 30% became and remained heterosexual. This is limiting treatment in terms of time and cost.

The longer the involvement the less chance of change. Bisexuals should be encouraged as well. Factors indicative of a favourable prognosis are: (1) a wish to change verbalized at outset of treatment, (2) respect and admiration for one's father, (3) treatment before 35 years of age, (4) a history of attempted heterosexual intercourse, (5) dreams depicting heterosexual interest or activity.

Negative factors are a history of a mother having openly preferred the patient to her husband and a history of effeminate voice and gestures during childhood.

In psychotherapy, emphasis is placed on delineating the irrational fears of heterosexuality, helping the patient learn how his fears developed, and helping to resolve these fears.

In behaviour therapy, therapists apply principles of learning theory as a method of extinguishing homosexuality. The patient is negatively conditioned to his unusual homoerotic stimuli. He is shown pictures with homosexual content and is simultaneously given shocks in order to bring about an association between the homosexual stimulus and a painful experience (aversion therapy).

Group therapy is indicated in cases in which one finds that the patient suffers from a general poverty in human interaction. Hypnosis has been used with some success in awakening the homosexual responsiveness and increasing the heterosexual one.

The patient's question as to what can be done about his condition has to be rephrased in terms of what the patient is willing to do about his condition and what he wants to invest in the process of change.

Cases of rejection and pessimism on the part of the physician, besides being unwarranted, have a tendency to increase a fatalistic attitude and decrease the motivation for change in the homosexual. The physician, if time is limited, should find out what it is that troubles the patient and why, so that appropriate referral can be made. The attitude shown by the physician at this point is crucial. It is very important that the patient should be able to talk to somebody who will neither condone nor condemn but who will afford him a neutral opportunity to examine his problems.

Before a psychiatric referral, the physician should make sure it is an important problem area in the patient's life, that the patient desires change, and that the psychiatric facility accepts problems of this kind.

LEGAL

Legal definitions have little to do with clinical matters but should be the concern of the physician. Thus a single person living on his own and consorting privately with equals who are a part of his own social group will usually meet with little social disapprobation (unless he does flaunt his homosexuality) and he will rarely become involved legally.

Others with specific social expectations, such as ministers or physicians, will not be able to choose their relationships freely and may be driven to public places to picking up strangers and thus become involved legally.

In practice at present, homosexuals are rarely prosecuted but the cloud of exposure and blackmail remains. The trend today is toward relaxing legal restrictions on

homosexual behaviour between consenting adults in private.

SUMMARY

In summary, homosexuality can be said to be the most common sexual deviation. Its aetiology remains unclear because of the many different phenomena grouped under the one term and the multiple factors involved in its causation.

Homosexual behaviour is prohibited in Canada by the Criminal Code but detection and presecution depend upon the circumstances, not the acts themselves.

To speak of a healthy, happy, homosexual is a euphemism. Though he or she may be creative and constructive in his work life this does not make him a healthy functioning adult. Homosexuality is engendered and persists through fear and anxiety. It is an inhibition of heterosexual expression.

The attitudes of all physicians are of primary importance in the development of a therapeutic and rational approach to this problem. Because of the opinions expressed by some physicians, a majority of homosexuals are reluctant to seek medical help; some do so with heightened anxiety.

Treatment is possible for most cases, if not in terms of cure, at least in terms of improvement of the problem situations.

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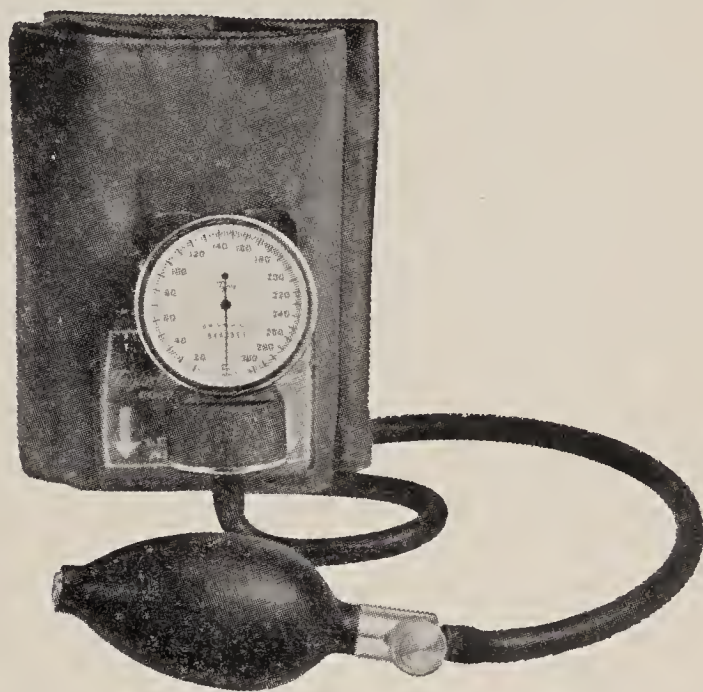
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Suicide And Suicidal Attempts in the Child And Adolescent

V. A. Smith 6T9

INTRODUCTION

It may be felt by some that a discussion of suicide in children and adolescents is of relatively little practical importance to the medical student or medical practitioner, since it is a problem we seem to encounter so rarely. It is the purpose of this article to point out that suicide in the individual under twenty years of age is indeed a real and serious threat, and one which is often under emphasized. It is, as well, a problem which has been recognized more and perhaps become more frequent over the past decade.

It is our intention, therefore, to point out that this is in fact a real problem, one that should not be passed over as being "not serious", and one which is more frequent than is generally realized; and to show how the alert physician may recognize some of the warning signs, and institute some appropriate form of prophylactic treatment.

DEFINITION

Many investigators feel that an adequate definition of suicide should contain the concept of self-destructive intent. While this is no doubt in many ways a valid point; it is felt that in many cases of successful suicide, especially in children, an intention of self-destruction, even a vague one, is often difficult if not impossible to elicit.

For the purposes of this article, suicide is defined as the termination of one's life at one's own hand. Similarly, a suicidal attempt will be defined as an attempt at terminating one's life, regardless of motivation.

INCIDENCE

In contrast to the large amount of material which is available for the study of adult suicides, remarkably few studies have been done on the topic of suicide in the child and adolescent age group.

It has been pointed out in the few studies which have been done that the figures given for the number of deaths due to suicide are "undoubtedly all underestimated. Many cases of suicide are concealed by parents and well meaning physicians under the guise of accidents. Furthermore, many accidents are at best thinly disguised attempts at self-destruction. Accidents, incidentally, lead all other causes of death in childhood by a vast margin.¹" In deciding whether any given case is an accident or a suicide, one may encounter considerable difficulty, for the findings are often equivocal. A suggested approach to these cases is to interview those closely connected with

the person involved and to obtain some insight into his personality, as well as any recent expressions of suicidal ideation or depression. It also may be helpful to reconstruct the events of the past few days. While this may not differentiate in all cases between the suicide or suicide attempt and the accident, it is frequently of much value.²

One of the few comprehensive surveys of this topic was done by Toolan. The figures for successful suicides in the child and adolescent age group in the United States for the year 1958 are given in the table below.

DEATHS DUE TO SUICIDE IN U.S.A. 1958

(Adapted from Toolan)

Age	5-9 yrs.	10-14 yrs.	15-19 yrs.
White M	3	58	255
F	—	11	96
Negro M	—	4	10
F	—	1	4
Other M	—	—	—
F	—	—	2
Total	3	74	367

He points out that, "although these figures may appear low, they are higher than the deaths from nephritis and nephrosis, leukemia, all forms of pneumonia, tuberculosis, and poliomyelitis in the 15-19 year group".¹ It again should be emphasized that these figures are probably much lower than the actual incidence of suicide in this age group, for the reasons outlined above.

Another more recent study done by Jacobziner in the United States points out that there has been a drastic increase in suicides in that country during the past ten years. The rate of successful suicides has increased over this period in the 15-19 year group by almost 50%. In 1962, one hundred and eleven children in this age group committed suicide by poisoning alone. In the same year, forty three children in New York City alone died at their own hand.³

Toolan also points out that successful suicides in children and adolescents are committed more frequently by males than by females, while females greatly outnumber males with respect to suicide attempts. This sex distribution holds true for older age groups as well.¹

Another point which can be illustrated by the above table, and which is substantiated as well by other observers, is the general rise in incidence of successful suicides with age. Few children under the age of ten success-

fully kill themselves. In most studies done, there is a definite increase in incidence beginning at approximately the fourteen year age level.

Several points of note came to light in Toolan's study at Bellevue Hospital in 1960. In this year, of 900 total admissions involving children and adolescents, 102 were for attempted suicide. The range of intellectual functioning was about the usual in this sample, except that fewer mental defectives were encountered in the suicidal population. There also appeared to be a preponderance of first-born children, in contrast to the number who were later in birth-rank. Studies were done investigating the home conditions of these children. Most came from disorganized homes, less than one-third of the samples were living with both parents at the time of the suicidal attempt.¹

In summary, suicide is more frequent than is generally realized in this age group. Males outnumber females in actual suicides, while the reverse is true for suicidal attempts. There is an increased incidence with age, and a marked increase in incidence at about the fourteen year age level.

ETIOLOGY

There is comparatively little information available in the literature concerning the reasons why children and adolescents commit suicide. Most investigators, however, of the few who have pursued this topic, feel that the psychodynamic factors involved in this age group are somewhat different from those involved in adult suicides, and these will be discussed shortly.

Virtually all ongoing research in this field involves children and adolescents who attempt suicide, rather than those who have successfully carried it out. This appears reasonable, for it has been pointed out above, that little information is available regarding the etiological factors involved in the successful suicide. Frequently, there is genuine ignorance of the factors at work on the part of those most intimately connected with the child, and perhaps even more common, is the desire on the part of the parents or other parties to "cover up" pertinent data, perhaps because of guilt feelings. For this reason, the information presented below is largely obtainable from studies done on suicide attempts. Whether or not it is valid to extrapolate this data and assume that the same factors are operant in the child who successfully commits suicide, is a matter of some debate. It should be pointed out here as well, that suicidal etiology is a complex question, with a variety of factors at work in each child.

The first question which springs to mind, and was referred to earlier in this article, is whether or not the child who attempts suicide fully comprehends the meaning of his action, and has self-destructive desires. There is some evidence which suggests that this may not be so. Gould⁴ feels that the child more particularly, and to a greater or

lesser degree depending on his level of development, the adolescent, has at best a somewhat fuzzy concept of death. He points out that the child has a limited capacity for abstract thought, and that it is virtually impossible for him to "conceptualize his own death". He feels that in our culture especially, death is a subject which is avoided in conversation, and, when it is spoken of, is often referred to in euphemistic terms. A pet is "put to sleep", or a favourite relative has "passed away". Therefore, the child's first concept of death may often be an almost pleasant one, and certainly not a realistic one. Thus, "the child conceives of death not as final and irrevocable, but rather as a reversible process". This is not as evident in the adolescent, who usually has a better grasp of reality.

This as yet incompletely formed idea of death, Gould feels, tends to influence suicidal attempts in children in two opposing ways. On the one hand, "it works strongly against suicidal behaviour. One generally has to understand a concept to handle it effectively, . . . on the other hand, precisely because he is unaware of the irreversibility and finality of death, he may think of it as a way out of an unpleasant situation which might in reality be quite trivial, but then, his notion of death is quite trivial also".

Another factor which should be re-emphasized here is the disorganized home situations from which a large proportion of these children come. As mentioned above, less than one-third of this segment of the population reside with both parents. Toolan¹ points out that these children most often suffer from lack of a father, either absent by death, or from some other cause. As well, with the large proportion of first-born children, one may postulate feelings of rejection and loss of love with the subsequent birth of the next child.

Gould⁴ states that the impulsivity of the child, and even more so the adolescent, may play a significant role in suicide as well. He points out that the child has neither a sufficiently formed ego nor defences to control the impulsivity of his actions in an adult fashion. He notes that while this factor tends to increase the number of suicide attempts, it tends to act against the number of successful suicides, for the impulsive act generally results in a hasty and poorly planned attempt.

Kanner⁵ feels that frank mental illness such as the Schizophrenic or Depressive Psychotic Reaction is responsible for but a few of childhood and adolescent suicides. He does point out, however, that the child who attempts or commits suicide is an unhappy, depressed child, and this is a point agreed with by most investigators. Depression is felt to be one of the most significant factors involved in suicides of this age group. This is a symptom which can often be missed by even the most astute physician, for depression here is much more difficult to recognize than it is in adults. It is a point of note, Toolan feels, that depression in this age group, more particularly in the child than the adolescent, frequently

does not manifest itself in the symptoms which are seen in adults. More frequently in the child, depression is manifested in behaviour disorders such as temper tantrums, running away from home, disobedience, self-destructive actions and the like. The child who exhibits such behaviour is often plagued by feelings of inadequacy and low self-esteem, and these are often reinforced by the reprimands or punishment he receives for such unacceptable behaviour.¹

When we consider the adolescent age group, the problem often becomes even more difficult to discern. Depression may manifest itself in the adolescent as boredom, and a generalized disinterest in the things going on about him. He may seek constant companionship and activity to fend off this boredom. He may be constantly fatigued, or greatly preoccupied with his bodily functioning and with numerous somatic complaints. As well, depression often presents in the adolescent in the form of acting out behaviour. Experimentation with drugs or sexual promiscuity may help to alleviate these feelings.¹

It is well to keep in mind then, that depression in this age group does occur more readily than is commonly realized, and that its manifestations are often widely different from those we see in adults, and therefore often missed. It is in just such a state of depression that the seeds of self-destructive thinking are often sown. A factor common to almost all suicidal attempts, and often a great contribution to depression is loss, either real or imagined, of love or of a loved object.

The actual precipitating factor in a suicidal attempt may range from the trivial, such as a failing mark in school, to the more severe, such as loss of a loved one. It is well to keep in mind that the conscious motive given by the child who survives such an attempt may bear little or no relation to the actual psychodynamics of the situation.⁴

Gould includes the following classification of types of suicide in his discussion of the topic:

“(1) The wish to gain support and strength through joining the lost loved object. Death in this case unites the child or adolescent with a dead parent where he feels his security lies.

(2) Death is retaliation for abandonment or threat of abandonment. . . . punishment of the other person as well as a demonstration of power and control to mask his feelings of helplessness are in evidence.

(3) Manipulation and blackmail to obtain love and attention and punish the other.

(4) Atonement for one's sins by dying. Although this motive is relatively uncommon in children and adolescents, they can, under proper circumstances, be made to feel so bad and guilty that only a completely self-destructive act can restore them to a state of humanity. Many

accidents for “injury-prone” children and adolescents represent self-destructive acts in a less complete way.

(5) Self-murder. Where the anger against another is of great intensity and for whatever reason cannot be expressed outwardly, it may be turned inward and represent symbolically the murder of someone else.

(6) Disintegration of the personality. In the course of an active psychotic process the child or adolescent may hear voices commanding him to die or he may have such a bizarre concept of death because of poor reality orientation that suicide may result. Death could also represent a concrete transformation of inner feelings of depersonalization and disintegration.

(7) A last cry for help. A suicide attempt may be an S.O.S. signal sent out diffusely and randomly with the hope that someone will pick it up.”⁴

ASSESSMENT OF SUICIDAL BEHAVIOUR

On the basis of the information given above, it has become obvious that suicide in children, and more particularly, in adolescents, is a real problem, and one which should not be passed off lightly if a suicidal attempt or threat is made. One may encounter some difficulty, however, in assessing the seriousness of a suicidal attempt or threat. Generally, the more conscious the idea of suicide, the greater the risk.² In general, suicidal behaviour may be subdivided into the following categories:

(1) The successful suicide.

(2) The suicidal attempt.

(3) The threatened suicide, but with no actual attempt.

(4) Vague ideas such as “life is not worth living” but with no actual expression of suicidal ideation, or generally self-destructive behaviour. This category should include as well the “accident-prone” child.

(5) Depression, which is often a predisposing factor to suicide.⁶

The first category, obviously, is not applicable to a discussion of prevention. The next two categories, though, i.e. the child who attempts or threatens suicide should, it is felt by most observers, receive the benefit of full psychiatric evaluation and treatment. It has been pointed out by Connell⁷ that it is important that the first medical person to become involved in such a situation, usually the family physician, be cautious and yet persistent in his approach to the situation. It is all too easy for him to be persuaded that the attempt was an “accident” and never uncover the underlying pathology which led to the suicidal attempt. On the other hand, too insistent a probing into the reasons for the attempt is undesirable as well. He should therefore be somewhat tactful in his inquiries, and at all times refrain from making a judgment regarding the morality of the child's act. It is important

as well that investigation be fairly prompt, for it has been established that the greater the time lapse between the attempt and the inquiry, the greater the tendency to conceal the real reasons underlying it. It is usually the case that a prompt involvement of psychiatrically trained personnel be instituted so that effective treatment may be carried out immediately. Interviews with the parents also must be handled with a high degree of skill for defences and denials will probably be high, and a good parental history may often shed much light on the events preceding the suicidal attempt. Again, concern for the child and refraining from making moral judgments are points to note.

It is important as well for the physician to have some skill in judging whether or not a child is potentially a suicide risk even though an actual attempt has not been made. We have mentioned above the depressed, unhappy child, and investigation should often be carried out here as well. Kanner has pointed out that "it is unnatural for a child to be disgusted with life. An unhappy child, psychotic or not psychotic, is not a well child and requires judicious psychiatric handling."⁵

It may be difficult in many cases to decide whether suicide is a possible event or not. Some of the symptoms of depression mentioned above such as boredom, running away from home, temper tantrums etc., should be looked for. As well, the picture of the unhappy, unfulfilled child, who has few friends at school, no hobbies, cries easily, and is withdrawn may help to arouse suspicion. A recent change in behaviour is often a warning of an impending suicide attempt.

All children who make suicidal attempts do not always intend to kill themselves, and this is indeed fortunate. The hysterical child will often attempt to harm himself with the prime intention of attracting attention. It should not be forgotten, however, that these children may often succeed in killing themselves accidentally, even though such was not their intent.⁵

It is important then, that the physician not underestimate the seriousness of the attempt before an adequate assessment has been made. He should conduct his investigation with tact and understanding, thereby hoping to uncover both the factors underlying the attempt, and the degree of its seriousness. He should, as well, institute psychiatric treatment for most cases.

TREATMENT OF SUICIDE ATTEMPTS

Connell⁷ suggests that the following method of treatment is generally effective:

(1) *Initial*—This consists of a two-fold regimen. Firstly, medical treatment for physical injury incurred in the attempt, such as the effects of drug overdosage, must obviously be instituted. In most cases, admission to a psychiatric facility is advised, for this will remove the child from a usually disturbing situation, and establish a relationship with him in which he may be able later to

work out his difficulties. Secondly, treatment should be instituted as soon as possible for depression in all cases where this is clearly a contributing factor. Hospitalization in a supportive setting may be all that is required in this regard. If not effective, however, anti-depressant medication is often of value.

(2) *Long-term*—Treatment here must generally be carried out over long periods of time for the disturbance is often severe. Treatment should involve the parents as well as the child, and modifications of a disturbing home situation, where possible, should be carried out. Placement of the child away from home may be desirable in some cases. Individual psychotherapy with the child, and often with the parents as well, is often of benefit.

PREVENTION

As has been pointed out above, early recognition and full investigation and treatment of the child who is depressed or has attempted suicide may often prevent a further attempt. However, the problem of prophylaxis is even more basic than this, for most children so involved come from disturbed family backgrounds. Responsible parenthood, adequate training in childhood needs and behaviour, as well as the current emphasis on family mental health⁶ may indeed provide the ultimate answer.

SUMMARY

Thus we have seen that suicide in the child and adolescent age group is more frequent than is generally realized. Its etiological factors are many and varied, and it is often difficult to recognize the child in distress before an actual attempt is made. Hopefully though, this discussion has brought to the attention of its readers the fact that this problem does in fact exist, and is often preventable if one is aware of some of the danger signals in an overtly or potentially suicidal child or adolescent.

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ACKNOWLEDGEMENT

Many thanks to Dr. James R. Wilkes, Clarke Institute of Psychiatry, Toronto, for his time and help in the preparation of this article.

The Psychiatric Examination

David Collins 6T9

It will not be news to the readers of this journal that there exists amongst medical students a spectacular degree of confusion with regard to the aims, methods and results of contemporary psychiatry. That this confusion is not resolved by the magic of graduation can be easily confirmed by observing the frustrated attempt of a junior intern to come to grips with a "psychiatric case". Naturally one can find many reasons for this scandalous state of affairs though that analysis requires separate treatment and will not be pursued here. But one aspect of the medical student's confusion about psychiatry is revelant here, and that is the general impression of vagueness which students take away from their training in psychiatry. Vagueness is not well tolerated by medical students, who have a great propensity for facts, classifications, sure truths and the like. For most of its history psychiatry has been rather short on these, which disappoints all students and of course, many patients.

One area where there is no further need for vagueness is that area of expertness known as the "mental status", or the psychiatric examination. The object of this paper is to reduce the need for vagueness with regard to the "mental status".

The "mental status" as we know it today has its roots in 19th century psychiatry. Those psychiatrists were for the most part dualists who often operated as if the mind and body led separate lives. There was on the one hand the neurological examination (in the general context of the physical examination), and on the other hand the mental status, in which the patient's psychological function was divided up into "thought", "feeling" and "behaviour". Their method of classifying psychiatric illness reflected the primitiveness of this approach. The first question was, neurosis or psychosis? If a patient was considered neurotic, and not psychotic, then for the most part he was thought a nuisance and of not much further interest. If he was psychotic, the next question was, neurological findings or no neurological findings? If there were neurological findings, he had an organic psychosis; if there were no neurological findings, he had a functional psychosis. In the case of a functional psychosis, if he had a disturbance of feeling which tended to get better with time he must be manic-depressive, whereas if he had a disturbance of "thought" and tended not to get better he must be schizophrenic. Although this description does not do justice to many subtleties of 19th century diagnostic thinking, I think it preserves the essentials of the state of affairs then. Unfortunately some contemporary textbooks of psychiatry describe the mental status examination as if this were the present state of affairs also, but of course it is not. Although we have only just begun, there now exists a great deal of neurophysiologi-

cal, psychophysiological, neurochemical and other information which allows us to be more precise about what we are doing when we conduct a psychiatric examination. As we hope the reader will soon notice, this recently acquired knowledge of the brain renders the psychiatric examination somewhat more sensible.

What are we doing when we inspect and test an individual's psychological function? The answer seems obvious, and yet it is seldom mentioned: we are simply examining the function of the brain as a whole, and the functions of its several systems. That is, the psychiatric examination is strictly analogous to the physical examination and has to be thought of in the same tight and coherent way. The separation of mind and body is not a description of a state of affairs, but only a linguistic convention; that is to say, we have psychological language and physical language, and the first problem in the practice of psychiatry is to relate these languages. Table I illustrates how readily this can be achieved with regard to the mental status. There are several systems, or areas of function, which need to be evaluated in order to arrive at a reasonable statement about the functioning of the "brain as a whole", that is, before arriving at a descriptive diagnosis. Most of these systems have identifiable physiological substrates in the brain, some knowledge of which is essential for an understanding of psychological function.

In performing a physical examination, one does not first palpate the liver, and then examine the eyes, then check the toes for position sense, then listen to the breath sounds, and so on. One proceeds by systems. Likewise in a psychiatric examination it is neither sensible nor efficient to first ask some proverbs, then ask about hallucinations, then inspect the motor activity, then ask about a patient's dreams, and so on. Of course, because most of the information in a psychiatric examination arises from conversation, one has to distinguish between, on the one hand, the technique which an interviewer uses, and on the other hand, the theoretical framework in which he gathers his data. This paper is not about technique, it is about the theoretical framework. One's theoretical framework will have an obvious bearing on the technique one uses, but no workable technique can be rigidly inflexible.

We present, then, a *systems method* of organizing psychiatric examination data.

GENERAL DESCRIPTION

This is analogous to the first item in a physical examination. It includes data on the circumstances of the interview, the manner in which the interview began, the phy-

sical appearance and general demeanor of the patient, his initial attitude, the degree of co-operation, and so forth. It seldom requires more than one or two sentences.

THE SENSORIUM (CENTRENCEPHALIC SYSTEM)

(1) *Level of consciousness*—from hypervigilance to coma; assessment methods include response to various stimuli, degree of orientation to time, place and person, degree of attention to current goings on.

(2) *Attention*—degree of concentration manifested in the interview; degree of distractability; overactivity or underactivity of the orienting reflex; intactness of immediate memory (less than 10 seconds) which is usually assessed by the digit span method.

PERCEPTION (SENSORY INPUT REGULATING SYSTEM)

(1) Intactness of the various sensory modalities, special and general.

(2) Examination for misperceptions, illusions, misidentifications.

(3) Eidetic imagery—hypnagogic hallucinations, synesthesiae, etc.

(4) Apperceptive themes—the “colouring” which the patient gives to his own world of immediate experience.

(5) Hallucinations—auditory, visual, olfactory, somesthetic, etc.

MEMORY (TEMPORAL— HIPPOCAMPAL SYSTEM)

It should be noted at this point that the higher the psychological function, the less is it dependent on one particular brain system and the more it is dependent on the integrity of the brain as a whole. Thus, although the temporal-hippocampal system seems to be some sort of final common pathway for memory, lesions elsewhere in the brain and psychological conflicts alike can produce serious memory disturbances.

(1) *Immediate Memory*—10 second memory span, the usual criterion being the ability to recall 7 digits forward and 4 backward.

(2) *Recent Memory*—recollection of a name or number given at the outset of the interview, recall of a recent meal or event, etc.

(3) *Remote Memory*—details of childhood and early life.

(4) *Repressive voids in recollection*—repressive amnesias, screen memories.

THOUGHT (NEOCORTICAL SYSTEM)

Psychoanalysts distinguish between secondary process (rational, goal-directed, reality-oriented thinking) and

primary process (illogical, feeling-oriented thought); the Pavlovians distinguish between the second signalling system of conditioned reflexes (speech, thought, etc.) and the first signalling system (affect, non-symbolic activities, etc.). These distinctions find a rough correspondence in the physiological distinction between the neocortex and the limbic system. Examination of the neocortical system includes the following:

(1) *Intelligence*—a rough estimate of intelligence level based upon information, verbal fluency, level of schooling, simple problem-solving, ability to make abstractions.

(2) *Information*—questions about recent, well known events are the usual index.

(3) *Judgment*—assessed first of all on the basis of the patient’s story and general demeanor, and secondly by presenting specific problems—e.g. “What would you do if you found a stamped addressed envelope on the sidewalk in front of your house?”

(4) *Insight*—the degree to which the patient appears to recognize and understand his own difficulties.

(5) *Thought Process*—(a) speed of association or stream of thought—fast or slow, flight of ideas, pressure of speech, or retardation. (b) continuity—is the stream of associations logical, tight and coherent, or are they loosened, scrambled, heaped one on another? Is there circumstantiality, tangentiality? Is there flight of ideas? Are there many non-sequiturs?

(6) *Form of Thought*—is thought abstract or concrete, clear and precise or vague and woolly, autistic or reality-oriented? The usual method of testing this parameter, aside from general observation, is by asking the patient to interpret several proverbs. One looks here also for neologisms, peculiar condensations, eccentric styles of speech and thought, etc.

(7) *Thought Content*—a sample verbatim quote from the patient, preferably of several sentences, together with a description of his main preoccupations and themes of content; examination also for delusional thought, echolalia, bizarre beliefs, and so on. One looks especially for ideas of reference or influence, ideas of persecution or grandeur, delusions of guilt, worthlessness or impending doom, somatic delusions, and for evidence of autothichonous experiences. One must also search for evidence of suicidal or homicidal ideation. In a complete mental status, there ought to be in addition a description of repetitive dreams and/or recent dreams. Obsessional, phobic, depressive or other themes ought to be described under this heading.

AFFECT (LIMBIC SYSTEM)

(1) *Mood*—a description of the general feeling tone of the patient on a scale from depressive stupor to manic furor. This has to include both the usual feeling tone of the patient as well as any recent change.

(2) *Affective Range*—the sensitivity of emotional response, the degree of reactivity of the mood, the extent to which different emotions—fear, rage, anxiety, love, tenderness, happiness, sadness, shame, guilt, etc.—can be experienced.

(3) *Congruity*—the degree to which emotional responses “fit” with verbal production and behaviour, and with the situation.

(4) *Central Emotional Position*—a description of the individual’s characteristic emotional state—that is, the emotional state in which he usually finds himself, and to which he tends to automatically return.

(5) *Affective Deficits*—flattening, blunting, ambivalence, emptiness, poverty, liability, excessive control.

(6) *Depth or Intensity of Affect*—are affects experienced as shallow or profound?

BEHAVIOUR (PSYCHOMOTOR SYSTEM)

(1) Activity, mannerisms, tics and gestures during the interview.

(2) General level of activity—psychomotor agitation, retardation.

(3) Organization of activity—coherent and congruent, or distracted, incongruous or disorganized.

(4) Gait.

(5) Specific psychomotor anomalies—catalepsy, automatisms, echopraxia, tremor, etc.

SELF SYSTEM

Admittedly, we have arrived at a higher-level concept which has no presently understood specific physiological substrate. Nevertheless, it corresponds to our notions of a “system” in that it is a coherent set of thoughts, feelings, attitudes and dispositions, which first of all define the person as a whole, and secondly may show fairly specific deviations in various psychiatric syndromes.

(1) *Body Image*—the degree of awareness of one’s own visual and somatic sensations; the way in which the individual sees his own body (ask him to draw himself); his attitude to any deformities or unusual aspects of body build; does he like his own body?

(2) *Self Concept*—how the individual sees himself both qua-self and in relation to others; how he describes himself.

INTERPERSONALITY

Again we are dealing with a system which has no presently known physiological specificity, but which corresponds to a coherent system of functioning.

(1) *The patient*—his attitude to the examiner, the feelings he conveys—overtly or covertly—towards the examiner, his way of relating to the examiner—does he

plead for help, ask for direction, express defiance, suspiciousness, shame, does he manipulate, etc.?

(2) *The examiner*—a frank statement of the examiner’s emotional reaction to the patient—did he find himself getting angry, anxious, frustrated, or did he feel protective, sympathetic, or affectionate, etc.? This ought to include a statement about what the examiner thinks that patient did or said to evoke these feelings.

This, then is a psychiatric examination. At the conclusion of such an examination, it is a useful practice to summarize the salient positive and negative findings so that the descriptive diagnosis chosen does not seem to come out of thin air. It is good practice to summarize at the same time the salient positive and negative findings on general physical examination, because of course there are no grounds for separating psychiatric and physical data.

TABLE I

	PSYCHOLOGICAL LANGUAGE	PHYSIOLOGICAL LANGUAGE
I	Consciousness and awareness	Centrencephalic system
II	Perception	Sensory input regulating system
III	Memory	Neocortical (esp. temporal lobe) system and hippocampus
IV	Thought, etc.	Neocortical system
V	Affect	Limbic system
VI	Self-system Personality Interpersonality	“Brain-as-a-whole”
VII	Behaviour (psychomotor)	Motor systems and Neocortex

THE CONTEXT OF THE MENTAL STATUS EXAMINATION

It hardly needs saying that the mental status examination is only one of several procedures carried out in a psychiatric interview, the others including the taking of a history, the interviewing of relatives or other observers, a physical examination, and perhaps preliminary investigative procedures. In addition, it has to be pointed out that the psychiatric diagnosis is not solely descriptive, but as in the rest of medicine, attempts to be etiological. Thus, as in medicine, in the course of evaluating a patient, one makes in effect several diagnoses, each in turn less general and more specific until one has (ideally) arrived at a particular hypothesis regarding the causes of the patient’s illness. For example, an initial diagnosis of hypertension will give way at a later stage of diagnostic thinking to renal hypertension, and that in turn might give way still later to a particular diagnosis of left renal artery thrombosis. Likewise, in psychiatry, one may begin with a descriptive diagnosis of “psychotic depression” which yields, upon etiological analysis, to a final diagnosis

of myxedema, or manic depressive psychosis, depressed phase, or reserpine-induced depression, or whatever. Therefore, it is convenient to distinguish the following:

- (1) The descriptive diagnosis—as described above.
- (2) The etiological diagnosis—taking into account hereditary, biological, psychological and social factors as they interact to produce the present state of affairs.

This is the business of the psychiatric formulation, and although it is not the focus of this paper, it bears repeating that the mental status examination is only the second of several procedures carried out in a *full psychiatric assessment*, the first being the taking of a history, and the subsequent ones being the differential diagnosis, the planning of investigation, the etiological formulation, the choosing of a provisional comprehensive diagnosis taking into account both description and etiology, and a plan of treatment. As in the rest of medicine, in order to carry out this kind of investigation, one must have gathered one's data in a systematic, rational and reasonably standardized way. The literature on observer error in medicine reveals a general error rate of between 20%

and 30% no matter what the procedure or the specialty; in psychiatry this tends to run somewhat higher. With this degree of unreliability, physicians can ill afford an anecdotal or casual approach to clinical method.

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Eponyms And The Men

G. D. Hardacre TT0

Commencing in this issue, *Medical Muses* assumes a different name, *Eponyms and the Men*, and a new format designed in part to satisfy the average medical student's curiosity of esoteric terminology. In accord with the theme of each issue, the origins of several of the many proper names and eponyms with which medicine is blessed will be outlined. The reader is therefore expected to commit dutifully to memory these brief highlights in the Glorious History of Medicine.

One of the oldest eponyms in psychiatry is derived from the Greek legend of Oedipus and his sordid familial circumstances. Following a prolonged absence from the court of his father, the king, Oedipus returns to be engaged with an assumed stranger in a highway struggle during which the latter is slain. Returning to the court, Oedipus woos and marries a woman who, to his horror, is later revealed as his queen and his mother. Faced in addition with the discovery that the slain foe was his father, Oedipus puts out his own eyes in atonement and meets a tragic end. This tale is the origin of the term *Oedipal situation complex*.

Bedlam, a contraction of the proper name for St. Mary of Bethlehem Royal Hospital at London, was the first asylum for the insane in England. Founded as a priory in 1247 by Simon FitzMary, Sheriff of London, it was first mentioned as a hospital in 1330 and accommodated lunatics by 1403. In 1547 it was given into the custody of Henry VIII and thereafter achieved infamy for the incredible sights, sounds, and treatments within; three hundred patients, either caged or chained, remained on public view for a fee. The edifice survives in part to the present as an active treatment centre of the British National Health Service.

Thirdly, consider the term *mesmerism*. The prime interest of FRANZ ANTON MESMER (1733-1815), a member of the booming post-Renaissance Viennese school of psychology, was his theory of an humoral planetary energy—*Gravitas Animalis*, later *Animal Magnetism*—permeating and concentrating within the human body. Although this represented an attempt to relate the micro-macro cosmic theories of Paracelsus and the Newtonian laws of motion, Mesmer unfortunately displayed an ignorance of the physics of magnetism as such. As a clinical psychologist however, and as a particularly aggressive one to whom fair play and truth were but empty phrases, he left his mark upon a wooden tub or *baquet*. This infamous device was long the centre of dramatic scenes of group therapy, during which patients were "magnetized" by Mesmer's wand and were supposedly infiltrated with the planetary fluid from the tub. In reality, only crises of hysteria, convulsions, and fainting resulted. Alfred Binet later implied Mesmer a charlatan, and as animal magnetism fell into disrepute it was superceded by his genuine contribution, hypnosis, which became widely and successfully championed by Jean Martin Charcot.

JAMES PARKINSON (1755 - 1824) was principally a neurologist and described the disease which bears his name. Nonetheless, a portion of his time was devoted to psychiatry and a more extraordinary portion to revolutionary pursuits and writings; in October of 1794 he was examined before the Privy Council in connection with the "Popgun Plot" to assassinate George III. His extra-medical activities also included fossil accumulation, significant papers in paleontology, and a charter membership in the Geological Society.

KURU - A Unique Subacute Cerebellar Degeneration In Stone-Age Man

GENERAL BACKGROUND

In the densely forested mountains of the Eastern Highlands of New Guinea exists a culture, that prior to 1947, had not been exposed to European civilization. Even now, the peoples of the region know little of the world beyond a days' walk from their villages and their culture remains essentially stone-age. Hunting, staple farming and the raising of pigs are the bases of their primitive economy. The natives firmly believe in sorcery and witchcraft, and cannibalism is still practised.

The disease KURU occurs only among the Fore people and their descendents who live on the Lamari and Yani River watersheds. The terrain is mountainous, with land elevations between 4000 and 7000 feet, and crossed by many small rivers and streams. The Fore people typically live in small hamlets of about twenty houses, each holding four to six people. Intermarriage is quite common. The total population of the Fore people has been estimated at about 35,000.

When outsiders first came to this area they noticed some natives who were disabled by irregular, involuntary muscle spasms, usually manifested as extreme difficulty and awkwardness when walking. This disorder was called kuru, which in the Fore language means "trembling with fear". The natives attributed the affliction to the work of sorcerers among them, and suspected sorcerers were often promptly killed, and not infrequently eaten.

CLINICAL PICTURE

Kuru is a unique disease, with cerebellar symptomatology of ataxia, clumsy gait with disturbed balance predominating. The outcome is invariably fatal with death occurring within four months to two years after the onset of symptoms.

Initial symptoms usually consist of unsteadiness and fine trembling of the legs. Patients commonly complain of decreased dexterity with heel-to-toe walking when crossing a log bridge over a stream. This unsteadiness of their legs gives them a subjective sensation of weakness. Eventually, a prominent gait disorder showing gross ataxia develops within several months. The arms become clumsy, the speech slurred, and facial inco-ordination invariably develops. Soon the patient has the severest difficulty even maintaining a sitting posture. Only when lying prone or sitting completely supported will all involuntary movements cease.

Positive physical findings in the course of the disease include gross ataxia, intention tremors of arms and legs, muscular hypotonia, bilateral symmetrical hyperreflexia, infrequent horizontal nystagmus and the occasional weakness of conjugate lateral gaze. Significant negative physical findings include no evidence of paralysis or sensory disturbances, downgoing plantar responses and absence of cranial nerve palsies. The clinical course is usually afebrile until secondary infection intervenes.

Death inevitably results from thirst or starvation, aspiration of fluids, infection of decubitus ulcers or hypostatic pneumonia.

As originally studied, kuru was predominantly a disease of women of child bearing age and of children of both sexes. In recent years, the incidence of kuru in children has declined dramatically.

LABORATORY RESULTS

Laboratory results are of little assistance in the diagnosis of kuru. The smears of the peripheral blood are normal, as is the sedimentation rate. White blood cell count is normal. The cerebrospinal fluid shows a normal cell count and a normal protein level.

PATHOLOGICAL FEATURES

Evidence of a pathological process is confined to the central nervous system, especially in the cerebellum, but no gross lesions are apparent. There is widespread astrocytic hypertrophy and proliferation and a diffuse status spongiosum, or vacuolization of the grey matter. A diffuse neuronal degeneration is seen, especially in the afferent and efferent tracts of the cerebellum. Only minimal evidence of demyelination can be demonstrated. Occasionally mononuclear perivascular cuffing is observed. In some cases, amyloid containing plaques are found. Intracytoplasmic vacuolization is often observed in the large neurons of the corpus striatum.

ETIOLOGY

Ecologically, the kuru region differs little in the aspects of climate, geology, vegetation or fauna, from other regions of New Guinea where kuru is unknown. Culturally, the Fore people are very similar to other neighbouring native groups, except that the practice of cannibalism is more prevalent among the Fore people. The eating of relatives and friends who have died from all causes in-

cluding kuru, is still practised. The possibility that cannibalism may cause some hypersensitization or latent virus transmission has been considered. However, other cultures in New Guinea also practise cannibalism, and among them kuru is unknown. Besides, many of the children now dying of kuru, have never practised cannibalism.

No cause of kuru has been found in a person not from the kuru region, and in instances where a case of kuru has developed in natives in other parts of New Guinea, these people are invariably descendents of families originally from the kuru region.

In spite of the difficulties involved in constructing pedigrees of Fore families, no evidence has been found to support a theory of genetic transmission of kuru.

Although other native peoples have been in contact with the Fore people, for many years in some instances, no case of kuru has ever developed among them. Also, the presence of normal white blood cell counts, peripheral smears, and sedimentation rates in kuru patients tends to rule out an infectious etiology.

However, in spite of the lack of ecological, cultural, and epidemiological evidence, other evidence seems to indicate that kuru develops as a result of transmission of a particular type of virus, called a slow virus. Infections produced by such viruses have long incubation periods and produce progressive abnormalities over periods of months and years. The disease is often localized to a single organ. These viruses were first isolated in animals and are responsible for mink encephalopathy, scrapie, and visna in sheep. Scrapie and kuru have quite similar neuropathological and clinical pictures. Recently, intracerebral inoculation of chimpanzees with brain suspension of kuru victims has produced kuru-like symptoms in the apes after incubation periods of eighteen to thirty

months. Inoculation of new apes with brain suspensions of the dead apes has also had the same result. Thus, the slow viral etiology of kuru seems to have been demonstrated.

It is interesting that according to the natives, the disease seems to be relatively new to the area, and thus, may be due to a virus that is passing through the area. Recent reports of changing patterns of age and sex incidence of kuru among the Fore people tend to support this hypothesis.

IMPORTANCE OF KURU

The possibility that kuru is a chronic degenerative disorder caused in fact by a virus necessitates a re-examination of the etiology of other progressive degenerative diseases such as multiple sclerosis, amyotrophic lateral sclerosis, Schilder's disease, and progressive multifocal leukoencephalopathy. Attempts at transmission of these and similar diseases by intracerebral inoculation of primates have been few, and no investigators have had the time, patience, or facilities to wait out the long incubation periods that these and similar diseases may require if slow viruses are implicated in their etiology. Many diseases that have been assigned genetic, immunologic, neoplastic, metabolic or idiopathic causes may, in fact, be due to viral infestations.

D. E. Griesdale, B.Sc. 6T9

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Assaeries

Some Recent Investigation Into The Personality Of The Medical Student

For several years now, the personality of the medical student has been under study, in an attempt by many investigators to determine both the type of person that chooses medicine as a career, as well as the specific personality traits that mark the successful students, the better physicians, and those students who specialize. It has been realized that the old ideal of moulding doctors from virgin mental putty is not at all realistic, for at every stage of a medical career the individual's personality is a major factor in the success of the "moulding" process, and until the impact of this factor can be assessed medical schools will continue to lack a sound educational philosophy.

Admittedly, educators have always made assumptions about student personality and attitudes, going at least as

far back as the Flexner report¹ in 1910, which was the first major study of North American medical education; but only recently have these assumptions been tested in a formal scientific manner.

One of the earliest of the recent studies was done by Schumacher², who examined the relationship of personality to career choice in medicine. Among his conclusions was that "academically oriented groups appear to have higher theoretical-aesthetic interests, lower practical economic interests, higher dominance needs, and higher social welfare interests than full-time practice groups."

Other similar studies^{3,4} helped clarify various personality trends within medicine itself, as for example the

facts that psychiatry attracts students with higher psychotic tendencies and greater emotional lability, or that obstetricians are generally endomorphic or the general trend that students who rank higher on an obsessive-compulsive neurotic scale tend also to rank high academically and to become specialists.

However, none of these studies compared medical students to other students in general, and so their usefulness was limited, especially in planning admission standards and educational programs.

Some more significant and surprising work has recently been reported from Oswego State Medical College, by Parker and McDowell.⁵ In a broad comparison of the skills, attitudes, study habits and personality traits of medical students and students in the humanities, they made the following discoveries.

First, it was found that humanities students read at a regular rate, and with significantly greater comprehension than medical students at a similar stage in their university careers. Surprisingly, this difference held for technical as well as narrative reading material. The total average reading speed of eighty-six humanities students was 380 words per minute (standard deviation 32) as compared with a rate of 250 words per minute (standard deviation 28) for the group of sixty-five medical students. Their average comprehension scores, both for technical and narrative reading, were approximately 95% and 86% respectively. They further concluded that the differences in reading skills were generally attributable to a pattern of stress reaction in medical students, rather than to any difference in I.Q. or other mental ability ratings.

Their second major conclusion is one to which they called attention as being far more significant. This is: that investigative curiosity and critical thinking and reading tendencies are in fact much lower among medical students than among humanities majors. They measured these attitudes and tendencies by the "Conjoint Scepticism Rating" or CSR, which was defined generally as a gauge of "the student's tendency to doubt the accuracy of information given him and to question the statements or opinions of various information sources." Higher scores indicated greater "scepticism". The humanities students averaged a CSR of 157 (standard deviation 12) and the medical students 108 (standard deviation 13); (cf.—the same test on final year high school students⁶ showed an average of 98). However, the breakdown of the medical student's ratings by year of study appears to be even more important. The data shows that the CSR fell during every year of the professional course, dropping from 135 in first year to 92 in fourth year. Accompanying this change was an increase in obsessive—compulsive neurotic tendencies and a trend, in 58% of the students, toward developing a compensatory superiority complex associated with (or perhaps due to) a feeling of progressing inadequacy within their field of study.

The obvious conclusion is that some stressful factor during the four years of medical school was leading to a

dulling of the critical faculties and of the willingness to challenge supposedly authoritative claims. The authors further noted: "There is a progressively higher value placed on knowledge for its own sake, and students busy themselves with skimming textbooks and journals to find 'useful' facts and conclusions, heeding little to the references given for the facts or to the substantiation of the conclusions. It is a dear price to pay for explicit trust in an author."

The S. A. Wakefield Commission Report on Methods in Medical Education⁷, after giving a group of medical students a large number of short "model assignments", noted another interesting fact: that "... the student in searching the literature will consistently tend to find evidence to support his previous beliefs, rather than refute them, however fragmentary his initial information may have been." Wakefield also noted, in the somewhat poetic manner to which he often succumbs, "the degree to which medical students prefer to be led down the garden path to knowledge rather than hack through the dark jungle of truth is indeed frightening. A careless conclusion, an unscrupulous author, an unfounded dogma are all fuel for his burning desire 'to know'."

An additional point worth noting is the yet unpublished finding of Rutherford and Coles (which in fact might someday be correlated with Parker and McDowell's work in declining student scepticism), who noted that the average medical student exhibits a decline in intelligence quotient of 18.3 points from first year to fourth. The details of this study remain to be seen.

This last report notwithstanding, the fact is that medical education must be in dire straits when it can be shown that one of its basic aims—to produce critically and carefully thinking physicians—is being so poorly attained. One can only hope that this realization, and the recognition of the importance of personality in the educational process, will bring significant changes in the ultimate results of medical education.

A. J. Shoichet 6T9

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This is the first in a series of articles which will deal with basic symptoms and their physiology as related to the clinical situation. Any good diagnostician must be capable of analyzing and evaluating the stories of his patients and a knowledge of basic principles is a prerequisite for adequate treatment. If all patients presented with typical histories, the doctor would soon be replaced by computers and our scholastic years would be spent learning to push buttons. Fortunately, such is not the case, for judgement and intuition are not amongst the qualities of our electrically-powered friends.

A survey of the chief complaints of a number of medical and surgical patients at the Toronto General Hospital provided us with guidelines as to selection of topics. The results show that, of the patients seen, 36% of the medical patients and 51% of surgical patients mentioned pain as their chief complaint. Therefore, because it is the most frequent yet most perplexing symptom with which the physician is confronted, we are devoting the first two articles in the series to the subject of pain.

THE CONCEPT OF PAIN

Pain is an abstract concept involving (a) a physical stimulus (b) a physiological transport and (c) a psychological reaction. In the absence of (a) or (b) pain may still be said to be present, but without a psychological reaction, its existence is impossible.

We all know that pain, like any other symptom, is subjective. A pain which one person describes as sharp may be described by another in a completely different manner. Intelligence, socio-cultural background, and psychological and physical status are among the many factors which alter one's perception of pain.

But remarks about painful sensations do have in common (a) a connotation of unpleasantness and (b) an expectation, correct or otherwise, that there is tissue damage or something resembling it. Some non-painful, unpleasant experiences, for example, itching, soreness, or pressure, are probably modified sensations of pain which are less intense, more prolonged, or more diffuse than "pain", and likely involve the arousal of other sensory modalities such as heat or touch. Other non-painful, unpleasant sensations such as nausea, and vertigo are clearly not aspects of pain experience.

PAIN RECEPTORS

The pain receptors in the skin and deep structures are fine, free nerve endings. Each sensory neuron distributes its endings to constitute its domain, but the domain of adjacent neurons overlap so that any area of skin is innervated by at least two neurons. It is presently being debated whether nerve endings which subserve other sen-

sory modalities such as touch can elicit a sensation of pain when excited by a stimulus of high intensity, and indeed, whether specific nerve endings for any modality exist at all.

The sensation of pain probably consists of a number of "subsensations", each with its own characteristics. The two best established of these are called somatic pain and visceral pain.

Somatic pain arises from stimulation of nerve fibres in the skin and superficial structures. The adequate stimulus for excitation of impulses may be mechanical, electrical, thermal or chemical, but regardless of the nature of the stimulus, the quality of the sensation is the same, if only pain fibres have been stimulated. Brief application to the skin of any of the above painful stimuli arouses a sensation universally described as resembling a pinprick, whereas a more prolonged application produces a pain described as having a burning quality. Any other characteristics attributed to a painful stimulus are due to simultaneous stimulation of nerve endings of other modalities.

Visceral pain arises from structures derived from the embryonic mesoderm, in contrast to the ectodermal origins of the structures involved in somatic pain. These mesodermal structures include the hollow viscera and the solid viscera, as well as the visceral peritoneum and pleura. The only adequate stimulus for pain production in these structures is distension or stretching. The stimuli resulting in somatic pain do not produce pain when applied to a visceral structure. Pain produced by distension of the latter is characteristically dull and aching, although occasionally burning as in some oesophageal pain. Other contrasts between superficial and deep pain are shown in Table I.

TABLE I
DIFFERENCE BETWEEN
SOMATIC AND VISCERAL PAIN

	SOMATIC	VISCERAL
Origin	Ectodermal	Mesodermal
Adequate stimulus	Electrical Thermal Mechanical Chemical	Mechanical (distension)
Localization by patient	Well localized	Poorly localized
Associated autonomic responses	Pulse rate up Blood pressure up	Pulse rate down Blood pressure down Sweating Nausea
Reflex Motor Response	Primarily in extremities	Primarily in trunk (spasm, guarding, rigidity)
Double Response	Present	Absent

Although the above would suggest that superficial and deep pain are distinct sensations, they are closely related by the fact that their respective fibres travel in the same spinal tracts and by the phenomenon of referred pain to be discussed later.

Other less well defined types of pain exist; among these are the sensations arising from deep skeletal structures, including muscle, joints, periosteum and tendons. Muscle ischemia produces a type of pain described as squeezing or crushing as in angina, or as a "muscle cramp" as in intermittent claudication. The exact same quality of pain may be induced by injection of hypertonic saline into the musculature. Pain arising from joints, tendons, periosteum, as well as mucous membranes have individual qualities, but are similar in many respects. All of these types of pain are subserved by fibres travelling in autonomic nerves, as is visceral pain. Cardiac pain for instance is mediated via sympathetic fibres running to the stellate ganglion; thus removal of the latter had sometimes proved effective in the treatment of intractable angina.

PAIN FIBRES

As shown in Table I, somatic pain is characterized by a phenomenon called the double response, which is absent from visceral pain. The rate of conduction along a nerve fibre is a function of the diameter of the fibre; the diameter largely depends on the presence of a myelin sheath. Since myelin conducts impulses at a faster rate than nerve cell membrane, myelinated fibres will naturally conduct impulses more rapidly than non-myelinated ones. Pain fibres supplying the superficial structures are of two types: one type has a diameter of 2 to 5 microns and conducts impulses at a rate of 12 to 30 meters per second; the other type is 0.4 to 1.2 microns in diameter and its conduction rate is between 0.7 and 2.3 meters per second. When a pinprick is applied to the finger, a sharp pain is felt immediately, followed, after an interval of about 2 seconds, by a more severe, burning pain. These sensations are due to the rapid and slow conducting fibres respectively, whose impulses arrive at the cerebral cortex two seconds apart. Note that the interval between the "first pain" and the "second pain" will be less if the stimulus is applied to a more proximal part of the body, such as the upper arm since the impulses have a shorter distance to travel and therefore their arrival at the cortex will be closer in time.

The double response is absent in visceral structures because only smaller fibres arise from them, myelinated fibres being absent.

The large and small fibres which carry superficial pain impulses function independently and follow different routes in the spinal cord. The large fibres may continue to function while the small do not, and vice-versa. When a peripheral nerve is rendered ischaemic, the fast response is abolished while the slow one lingers, since the large

fibres are more sensitive to anoxia; thus in peripheral vascular disease, the patient usually complains of burning pain in the skin of his extremities. On the other hand, blocking of nerve fibres with local anaesthetics such as cocaine more readily abolishes the slow response.

PAIN THRESHOLD

The threshold of pain perception is the intensity of stimulation required to elicit a sensation of pain. Contrary to popular belief the threshold of pain is fairly constant in individuals under the same conditions. However, many things may alter the threshold. The threshold can be elevated if the subject is distracted from the painful stimulus by any other strong sensory stimulus, hence the use by dentists of music or loud noise to reduce the pain of the drill. Placebos and analgesics also elevate the threshold.

When the threshold for pain perception is lowered, a state of hyperalgesia is said to exist. Inflammatory lesions are surrounded by an area of hyperalgesia; stimulation of an inflamed area produces a painful response at a threshold slightly lower than normal and in addition results in a pain which is severe, diffuse and prolonged. Temperature elevation is another factor which lowers the pain threshold. The mechanism of hyperalgesia is poorly understood, but its quality makes it likely that it is associated with the unmyelinated slow-conducting pain fibres.

Although the threshold of pain perception varies little between individuals, there is extreme variation in the degree of response to a given intensity of stimulus. Negroes and North American Indians have a high "threshold of reaction", while in Mediterranean peoples and in neurotics, the threshold is low.

REFERRED PAIN

Stimulation of pain sensitive neurons in a deep structure frequently results in a sensation of superficial pain felt at a distance from the site of the stimulus. This describes the familiar, but poorly understood phenomenon of referred pain. The quality of referred pain is usually of a deep, aching nature. The situation is frequently complicated by the fact that hyperalgesia and sometimes even muscle spasm may occur in the area of reference.

The physiological basis of referred pain is, as mentioned above, not yet well established. The area of reference is often innervated by the same spinal segments as is the source of the painful stimulus, but may extend to neighbouring dermatomes as well. It has been proven that pain may be referred to dermatomes other than those being stimulated if a coexistent lesion is present in the former. This is a possible basis for the localization of myocardial ischemic pain in the abdomen in patients with pre-existing peptic ulcer or cholecystitis. On the other hand, radiation of cardiac pain to the jaw, which like the stomach and gall bladder, is subserved by different spinal

segments than the heart, is not explicable on this basis. Radiation to the ulnar aspect of the left arm conforms to the upper dorsal segments as the nerve supply to this region and the heart.

In formulating a theory of the mechanism of referred pain, two observations are important. First, anaesthesia of the nerve fibres at the source of the stimulus, abolishes the referred pain. Second, anaesthesia at the area of reference abolishes the hyperalgesia but often not the pain in the area of reference. These facts, particularly the latter, along with other evidence, render in doubt the old theory stating that axone branching and antidromal impulses account for the phenomenon. At present, accumulated evidence, although far from conclusive, favors the following mechanism: afferent fibres from both somatic and visceral structures converge in the dorsal horn on neurons which send their axones into the lateral spinothalamic tract; that is, there are fewer fibres in the spinal cord than there are peripheral afferents. Ascending impulses along a given spinal nerve fibre may therefore have their origin in visceral or somatic afferents. Teleologically, it may be argued that somatic pain is more common than visceral, and so cortex (or subcortical structures) preferentially interprets the source of the pain as a somatic structure. The matter is more complex, however, because it is likely that descending impulses influence the receptivity of the spinal afferents to impulses arising from the periphery, thus determining the pathway taken at the cord level by sensory waves. It has also been suggested that impulses arriving at spinal neurones from visceral structures lower the threshold of these neurones for impulses of somatic origin, creating in effect, a "spinal hyperalgesia".

It can be seen that the mechanism of referred pain is, at the moment, a matter of speculation and awaits definitive research. Patterns of referred pain will be dealt with in the next article on specific regional pain.

PAIN TRACTS

A working knowledge of the route taken by pain fibres is essential for the understanding and diagnosis of pain. Pain may arise from application of an adequate stimulus anywhere along the pain pathway. Conversely, interruption of the pathway will cause analgesia of the corresponding area in the periphery.

When a painful stimulus is applied to a pain-sensitive nerve ending, a wave of depolarization passes along the nerve fibre and into the posterior root where the cell body lies in the dorsal root ganglion. It should be mentioned here that several workers have hypothesized the presence of sensory fibres in the anterior root as well, but irrefutable evidence has yet to be put forward.

As previously discussed, two types of pain fibres exist, myelinated and non-myelinated. The large, rapidly-conducting myelinated fibres, upon entering the spinal cord, are thought to pass through the gelatinous substance and

synapse with nerve cells within the proprius of the dorsal horn of the grey matter. The axons of these dorsal horn cells cross by way of the white commissure to the ventral part of the white matter of the contralateral side of the cord. Thus is formed the lateral spinothalamic tract, which, as it ascends, becomes increasingly larger, as fibres from the upper parts of the body are added to its medial side. Thus in the medulla, the fibres of most caudal origin travel in the most lateral part of the tract, and the upper limb and neck fibres are the most medial. The fibres responsible for the sensation of temperature travel with the pain fibres in the lateral spinothalamic tract, so that a lesion to this part of the cord causes defects in both pain and temperature sensation.

The small non-myelinated fibres, after entering the cord, each give off two branches, one of which heads caudally and one rostrally. These branches travel in what is called the zone (tract) of Lissauer or the dorsolateral fasciculus to a destination only a few spinal segments distant from their origin. Here they terminate by turning into the dorsal horn and synapsing either with small cells in the gelatinous substance or with the large cells of the nucleus proprius. The fibres of the tract of Lissauer are probably important in mediating intersegmental reflex motor responses to painful stimuli, such as withdrawal of the entire arm following a pinprick to the finger.

After giving off the branches to the tract of Lissauer, the small nonmyelinated fibres continue into the grey matter to synapse in the substantia gelatinosa or in the nucleus proprius. The small cells in the substantia gelatinosa are probably intercalated between primary afferent neurons and cells of the nucleus proprius, or cells involved in intrasegmental reflexes. The implications of the branching of the non-myelinated afferents and the tract of Lissauer are significant. Firstly, there is the intersegmental reflexes mentioned above. Secondly, there is the possibility that the tract of Lissauer is important in the mechanism of pain referred to adjacent spinal segments. And lastly, the longer course taken by these fibres may be another factor in the causation of the "double response", previously discussed.

The lateral spinothalamic tract courses rostrally, passing into the medulla, where it is crowded dorsally by the inferior olivary nucleus. In the pons it passes lateral to the superior olive and the reticulothalamic tract, gradually assuming a more dorsal position. The pain and temperature fibres are joined by the medial lemniscus, a pathway carrying fibres of the other sensory modalities. Thus a general sensory pathway enters the thalamus.

The fibres of the lateral spinothalamic tract of the thalamus synapse with cells in the nucleus ventralis posterior. Fibres from the lower segments of the body terminate in the external part of this nucleus, those from the upper limb and neck in the medial portion and those from the face probably in the nucleus ventralis posterolateralis (arcuate nucleus). The axons of the thalamic

cells are projected to the postcentral gyrus of the cerebral cortex maintaining the same relationship to one another as they have in the thalamus; thus the lower limb fibres go to the superior part of the gyrus and the upper limb to the inferior part. Therefore the body from bottom to top is represented in the thalamus from medial to lateral and in the postcentral gyrus from top to bottom.

Although the preceding implies that the pathways taken by pain fibres are well established, in reality several well-known phenomena make it obvious that the situation is more complex than it would appear. If all ascending pain fibres travelled in the lateral spinothalamic tract, a unilateral tractotomy should produce contralateral hemianaesthesia, but this is seldom the case. Usually, after interruption of the tract, a period of weeks or months of anaesthesia is followed by gradual recovery, to a greater or lesser degree, of the sensation of pain. This phenomenon occurs with greater frequency in the brain-stem lesions than cord lesions. It is therefore likely that the pain fibres become more diffuse in the brain stem with a tendency to bilateral representation, especially as regards fibres arising from the facial region where reappearance of pain sensation is most constant.

It also seems apparent that the essential centres for pain sensation are located at a subcortical level, for hemispherectomy rarely abolishes pain sensitivity. In addition,

stimulation of the sensory homunculus rarely results in the familiar sensations of pain that we normally feel. The role of the cortex is most likely one of fine discrimination, interpretation and localization.

THALAMIC SYNDROME

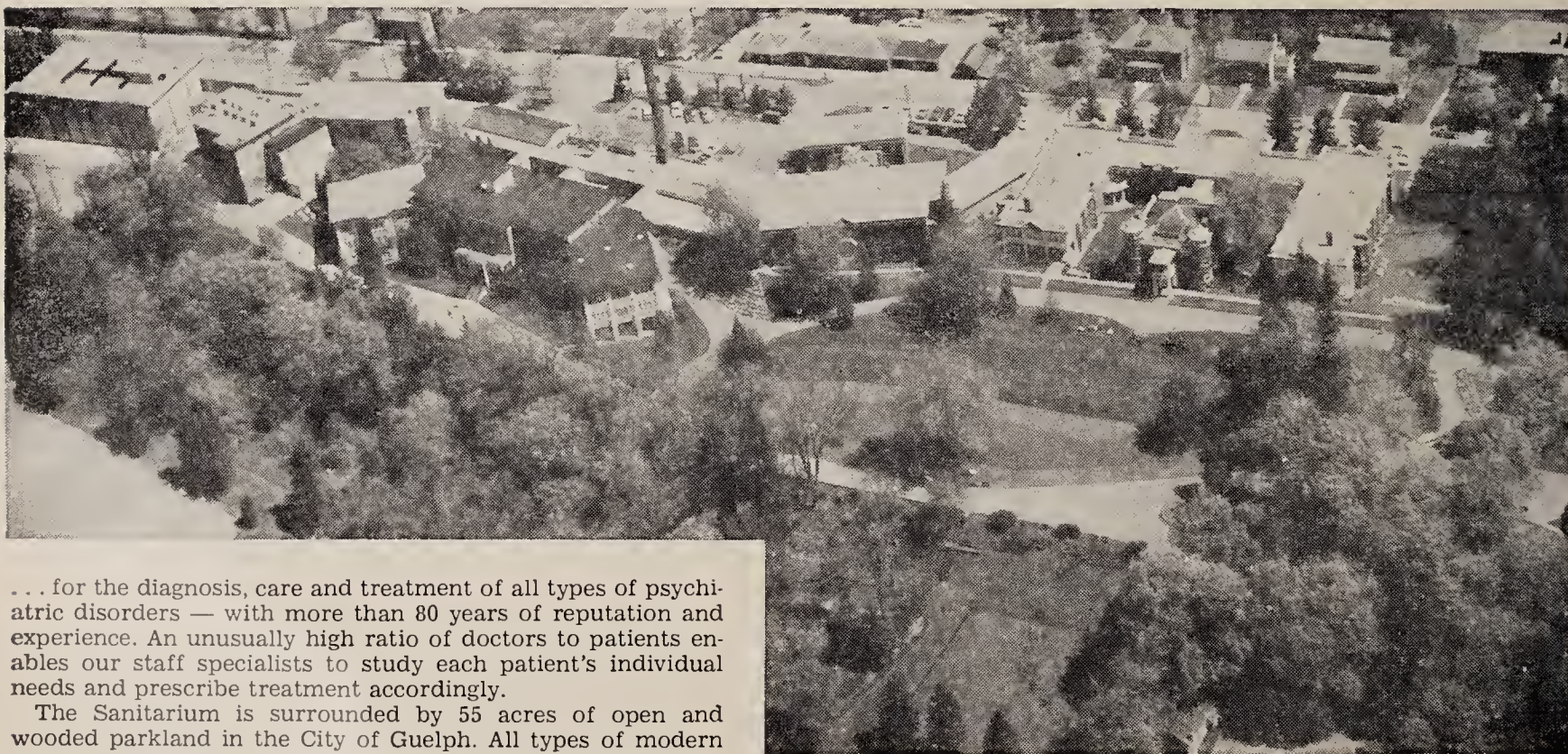
Thrombosis of the thalamogeniculate artery results in a lesion involving the posteroventral thalamic nucleus. This sometimes results in what is called the thalamic syndrome of Déjerine and Roussy. Following a transitory complete hemianaesthesia, painful sensations to pinprick or pinching reappear. These sensations are usually more severe proximally than distally and are most pronounced on the face. They come on after a latent period following stimulation and the patient usually has great difficulty in localizing the stimulus. The quality of the pain is peculiarly diffuse and disagreeable and persists after the stimulus is removed. The syndrome may progress until ordinary non-painful stimuli such as contact with ice, touching clothing, or even auditory stimuli may initiate this uncomfortable sensation. Eventually the unfortunate patient may reach a state whereby constant or paroxysmal pain not requiring external stimuli occurs. The basis of the thalamic syndrome is not known, but electrocoagulation of certain parts of the thalamus is sometimes successful in abolishing it.

T. Shapiro and Z. Cohen

TO BE CONTINUED IN NEXT ISSUE.

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Clinicopathological Conference

Psychologic Deterioration and Convulsions in a 38-Year-Old Male

CASE PRESENTATION

A 38-year-old male was admitted to TWH with a complaint of repetitive obsessive ideas of more than one year's duration. He grew quite anxious about these thoughts, but did not seek professional help until two months prior to admission, when a feeling of unreality suddenly overwhelmed him. There were no associated hallucinations; and there was no period of unconsciousness during this episode. That same day his wife observed what appeared to be a generalized seizure—writhing of the body, snarling and gnashing of teeth.

He consulted a psychiatrist, and received medication including Tuinal, Stelazine and an anti-depressant. Anxiety was allayed on this drug regimen. However, his condition soon worsened. Anxiety mounted, associated with insomnia. He had three similar seizures before admission to hospital.

The patient had been nauseated with some vomiting for two months, although not in relation to meals. He reported a weight loss of six pounds in the last six months, bilateral throbbing frontal headaches for two weeks relieved by "222s" and constipation. He denied any blurring of vision, fever, hematemesis, hemoptysis, chest pain, abdominal pain or melena. Past health and family history were non-contributory.

A neurological consultation prior to admission revealed no organic basis for the complaints.

Physical examination revealed a thin, pale white male lying in bed, and looking chronically ill. The head, neck, thorax and abdomen were normal. Cranial nerves were intact; sensation was normal; tone was increased; muscle strength was generally reduced and reflexes were brisk and equal bilaterally (plantars were equivocal). The patient was slightly disorientated.

Laboratory findings were: Hgb 15.7, WBC 6,300 (N77, E1, L19, M3), ESR 5 mm/hour, blood smear normochromic and normocytic, Na 140 mEq/L, K 4.1 mEq/L, C1 103 mEq/L, BUN 10 mgm% and PBI 4.9 μ g%. The urinalysis revealed a S.G. of 1.008. Urine was negative for albumin, glucose and porphobilinogen. The VDRL was negative.

Plain skull films were normal. An EEG report was as follows: "There is an 8 cps alpha rhythm of moderate voltage. There is a good deal of moderate voltage of 4-7 cps activity of a rather diffuse bilaterally synchronous type. Overbreathing could not be done."

No air-study, cerebral angiogram, or brain scan was performed.

COURSE & TREATMENT IN HOSPITAL

The patient was admitted to hospital in a catatonic-like state. His expression was one of depression; speech was slow and his hands were unsteady. Memory for recent events was poor. On the fourth day clonic spasms of the left leg were observed. His breathing was stertorous, and he was now unable to feed himself. Medication to date consisted of chloral hydrate, Tofranil and Dexamyl.

An upper G-I series carried out on the eighth day was within normal limits. Aspiration of barium produced a normal right bronchogram. Penicillin was begun. A urinary retention catheter was inserted. On the ninth day rales were heard over the right posterior lung base. A lumbar puncture produced clear, colourless CSF with an opening pressure of 30 cm of water. The CSF was sterile. There was 1 WBC/cubic mm and 0 RBC/cubic mm. The colloidal gold was 1111000000 and the VDRL negative. Protein was 32 mgm%, glucose 112 mgm% and chloride 125 mEq/L. Papilledema was not present. Abdominal reflexes were absent.

He responded to penicillin therapy, although he was febrile for the last two weeks of his life. On the tenth day tests revealed his fasting blood sugar to be 95 mgm% and the 2 hour PC 103 mgm%. On the fifteenth day he had a seizure which began on the left side of the face, extended to the left arm and left leg and subsequently became generalized. There was a period of unconsciousness. Following the seizure he deteriorated rapidly. Duodenal feedings were initiated. Dilantin was administered. On the sixteenth day the patient was acutely ill; there was marked neck stiffness and bilateral upgoing toes. Papilledema was absent. Sputum revealed a normal flora, a moderate growth of *E. coli* and a light growth of a yeast-like fungus. The urine was aseptic. There were 3-8 RBC/HPF. On the seventeenth day, a traumatic lumbar puncture produced a small amount of cloudy fluid. CSF protein was 96 mgm%. A mobile chest film showed diffuse small rounded nodular densities throughout both lung fields, those at the right apex being more conglomerate and appearing calcified. On this day penicillin was discontinued and erythromycin was begun. Rectal temperature was 104.

The patient was obtunded by the eighteenth day. Sputum grew a moderate growth of *E. coli* plus *E. inter-*

media. No acid-fast bacilli were noted on direct smear. *Mycobacterium tuberculosis* was not demonstrated on culture. Vital signs were: rectal temperature 102, radial pulse 90/minute and respirations 22/minute. On the nineteenth day bilateral upgoing toes and an extremely stiff neck were demonstrated; and the patient expired.

The case history was presented to Dr. H. Berry (SMH), and his discussion of the differential diagnosis follows:

DIFFERENTIAL DIAGNOSIS

In summary, the clinical picture is that of a 38-year-old male with an illness of more than one year's duration which presented with psychological symptoms, with the subsequent development of convulsions, nausea, vomiting, disorientation with some motility disturbance and unsteadiness, increased reflexes without signs of raised intracranial pressure and with a generalized theta and delta electroencephalographic abnormality and an essentially normal CSF examination. The terminal stages were complicated by aspiration and a febrile chest illness.

At the outset, the feeling of unreality and the other emotional symptoms would raise the question of an otherwise uncomplicated psychiatric illness. The sensation of unreality is part of the depersonalization syndrome as seen in conditions of increased anxiety, in hysterical dissociation and in schizophrenic illness and is part of the more complex experience of a disturbance of personal identity. Less commonly, it is encountered as one of the psychic manifestations of a temporal lobe epileptic discharge.

The development of generalized convulsions however, would turn one's attention to organic cerebral disease. The overall clinical picture of progressive deterioration, continuing seizures, motility disturbance with catatonic features, slow speech, unsteadiness of the hands, with generalized slow wave EEG abnormalities, would combine to favour the diagnosis of a diffuse cerebral disturbance of an organic type. Any evidence for a more focal cerebral disturbance is minimal and consists of clonic spasms of the left leg and the left-sided onset of a generalized convulsion. To put the problem in another way we may ask "what is the differential diagnosis of progressive intellectual and personality deterioration, with convulsions, with the above clinical features?"

Many conditions and categories of conditions can be mentioned only to be excluded. The clinical picture is not that of bacterial meningitis nor is it the usual picture of viral encephalitis, of an epidemic or sporadic form. Tuberculous meningitis may present as a psychiatric disturbance, but the duration of illness and the absence of lymphocytes and elevated protein as well as the absence of the specific organism are all absolutely against this diagnosis. Cerebral ischemia on the basis of atherosclerosis within the intracranial or extracranial circulation is occasionally seen in this age group with a degree of in-

tellectual and personality disturbance but the history is one of an acute episode or episodes with focal symptoms and signs such as dysphasia, hemiparesis or a visual field defect. Hypertension, diabetes, peripheral vascular insufficiency, essential hyperlipemia or arteritis are often associated with cerebral vascular accidents in this age group; and we can conclude that the clinical picture is not that of a progressive dementia on a vascular basis.

Brain tumour of a primary or secondary type requires some comment. Tumour growth produces focal symptoms and signs in accordance with the site of growth but may also produce generalized or diffuse disturbance on the basis of raised intracranial pressure or ventricular obstruction. The presence of nausea and vomiting raises the question of raised intracranial pressure in this context but papilledema did not develop, although one CSF pressure was recorded at 30 cm. at a time when respiratory difficulty was also present. Tumours arising within the third ventricle such as a colloid cyst or a glioma of the thalamus may present with progressive personality and intellectual deterioration without localizing findings, but usually with headaches and evidence of raised intracranial pressure. Similarly an ependymoma of the fourth ventricle may present with headaches, precipitated by change in posture, early onset of raised intracranial pressure, drowsiness and frank papilledema. The clinical picture does not suggest these conditions nor does it suggest a tumour of the corpus callosum which may produce dementia and seizures, but with raised intracranial pressure and the eventual appearance of more focal cerebral signs. The same objections and the absence of a primary site, would apply to the suggestion of multiple cerebral secondary metastases.

Certain metabolic conditions can produce a diffuse cerebral disturbance with confusion or a dementia-like state without focal manifestations. Portal-systemic encephalopathy, uremia, episodes of intrinsic or self-induced hypoglycemia with persisting manifestations of hypoglycemic encephalopathy, the cerebral atrophy and dementia of severe alcoholism and the drowsiness and confusion of hypercalcemia can all be excluded here. Wilson's disease may produce a progressive dementia in this age group, but the absence of involuntary movements and more prominent extrapyramidal manifestations, evidence of cirrhosis and the Kayser-Fleischer ring would all militate against this diagnosis. The hereditary condition of Huntington's chorea is a cause of progressive dementia in this age group but the absence of chorea-athetosis as well as family history would exclude this condition. Bilateral subdural hematomata may produce a picture of dementia with personality and intellectual deterioration but this would be uncommon in this age group and the absence of papilledema as well as the clinical course would also argue against this condition. The entity of symptomatic occult hydrocephalus with "normal" cerebrospinal fluid pressure has recently received emphasis and may produce a picture of progressive dementia with

psychomotor retardation, ataxia and incontinence. This condition, at least as it has been recognized, occurs in the older age groups, and the protocol does not suggest this diagnosis.

We are left to consider those degenerative conditions which involve gray or white matter which may apply here. The clinical picture is not typical or suggestive of Schilder's disease or of meta-chromatic leuco-encephalopathy and we can readily exclude acute hemorrhagic leuco-encephalitis and subacute sclerosing leuco-encephalitis. Jakob-Creutzfeldt's disease usually shows a more rapid clinical progression with startle myoclonus and a bedridden state in a few weeks. Spongiform degeneration and other forms of progressive subchronic dementia can produce this type of clinical picture. Similarly the Pick and Alzheimer forms of pre-senile dementia with demonstrable cerebral atrophy and specific neuropathological changes, may occur at this age group and are applicable here. Pick's disease is more prone to present with a dysphasia or hemiparesis, and of these two conditions I would favour Alzheimer's disease as being the more likely. In many of these conditions the exact cellular diagnosis cannot be established on clinical grounds and must await the more final authority of the neuropathologist.

In conclusion, it is proper to recall that a diagnosis must always remain an assertion of probability within a hierarchy of other possibilities. On the basis of the evidence, I would offer the diagnosis: progressive cerebral degeneration, producing the clinical picture of pre-senile dementia, possibly of the Alzheimer type. In addition aspiration pneumonia was present.

Autopsy Findings—These were confined to the respiratory and central nervous systems.

GROSS

RESPIRATORY SYSTEM

The pleural cavities contained no fluid or adhesions. The left lung weighed 525 Gm. The right lung weighed 475 Gm. There were numerous small whitish consolidated areas in the right lower lobe which were thought to represent aspirated barium.

CENTRAL NERVOUS SYSTEM

The brain weighed 1650 Gm. It appeared grossly swollen and there was marked flattening of gyri. A discoloured area in the right frontal lobe measured approximately 4 cm in diameter. There was herniation of the hippocampal gyri. The brain-stem was pushed downwards and to the left with notching of the left cerebral peduncle. The large vessels at the base of the brain were of normal distribution and showed no evidence of atherosclerosis.

The formalin-fixed brain was cut coronally at 1 cm intervals revealing a large tumour mass in the right frontal lobe. The tumour tissue was multi-coloured and cavi-

tated and extended as far back as the level of the anterior thalamus. The white matter adjacent to the tumour was markedly edematous.

MICROSCOPIC

RIGHT FRONTAL LOBE

The section revealed a portion of cerebral cortex beneath which was a rather pleomorphic astrocytoma. The cells were clearly recognizable as astrocytes, but they showed some variation in size and shape of nuclei, hyperchromatism and occasional mitoses. The small blood vessels within the tumour showed marked proliferation of endothelial cells. The central portions of the tumour showed areas of hemorrhage and necrosis. The microscopic picture is that of a grade three astrocytoma.

LUNGS

Sections of both lungs, particularly the right, showed numerous fine irregularly shaped foreign body particles within small bronchi and alveoli. Numerous foreign body giant cells were present. The alveolar septae were edematous and hyperemic. There was a striking lack of an acute inflammatory response. The picture is that of an aspiration pneumonia. The foreign material is presumably barium sulphate.

ANATOMICAL DIAGNOSIS

Astrocytoma of brain, grade 3 (right frontal lobe)

Edema of brain (1650 Gm)

Herniation of hippocampal uncus (R) and cingulate gyrus (R)

Duret hemorrhages of midbrain and pons

Congestion of lungs (bilateral)

Aspiration pneumonia (bilateral, focal)

Death was attributed to increased intracranial pressure secondary to a large frontal lobe astrocytoma.

DISCUSSION

Astrocytomas comprise one-third of all gliomas. The tumours are slow-growing lesions that appear fairly well circumscribed but actually infiltrate into the adjacent brain tissue. There are four grades of malignancy, depending on cellular appearance and prognosis; grades three and four are called glioblastoma multiforme.

By themselves, mental symptoms are of little value in the diagnosis of a frontal lobe astrocytoma, although disturbances of the sensorium are quite common. These may vary from slight somnolence to clouding of consciousness or coma; and often there are associated generalized convulsions. Changes in personality are frequent and disturbances in affect are seen, including irritability, euphoria and facetiousness. Intellectual deterioration bears a noticeable relationship to the magnitude of intracranial pressure.

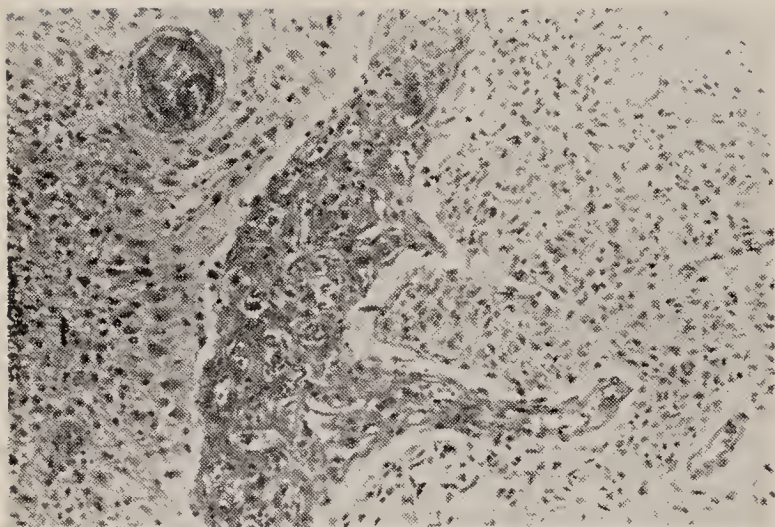


FIG. 1. SECTION OF RIGHT FRONTAL LOBE ASTROCYTOMA
Low power view shows tumour tissue on both sides with proliferating mesenchymal tissue in the centre within the subarachnoid space. A blood vessel which has thrombosed because of endothelial proliferation is seen at 10 o'clock.

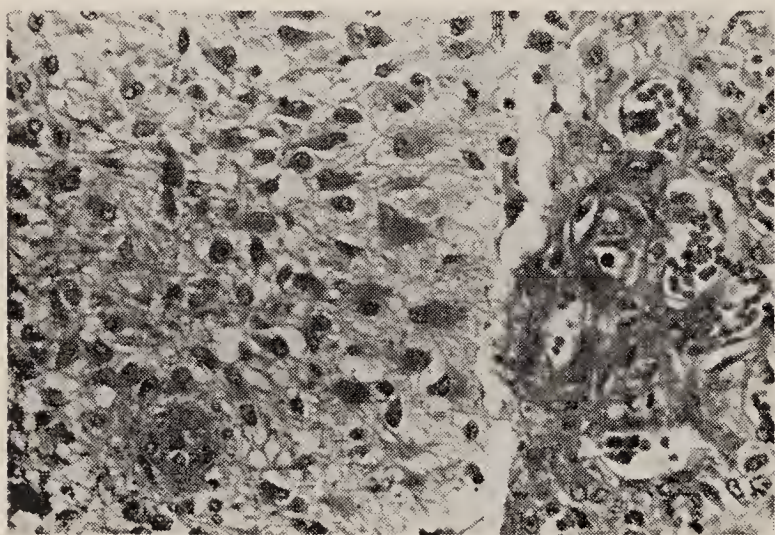


FIG. 2. SECTIONAL ASTROCYTOMA
AT HIGHER MAGNIFICATION
Tumour astrocytes are well seen. Nuclear size is variable and chromatin material is coarsely clumped.

Glioblastoma multiforme has a sex ratio, male to female, of 3:1, and occurs with equal frequency in either hemisphere. The tumour may be very infiltrative and

cross the mid-line. Hemorrhage into the tumour or the sudden development of cerebral edema may greatly accelerate the clinical course and make diagnosis difficult. One may find papilledema, an extensor plantar response and memory loss.

The important diagnostic studies in considering glioblastoma multiforme are cerebral arteriography, air study (ventriculogram, pneumoencephalogram), radio-active brain scan and the EEG. The EEG has much less diagnostic value than the other procedures since it often shows focal abnormalities far from the tumour site. One may demonstrate a shift of mid-line structures in the brain with high-frequency sound (echogram).

Surgical treatment of glioblastoma multiforme is classified as external decompression (i.e. the dura mater is opened), partial resection, and extensive resection. The quality of survival is said to be enhanced by radical tumour resection. Also there is an improvement in survival time with radiation, most evident from three to twelve months. One year post-operative survival for patients who have extensive tumour resection plus radiation treatment is roughly 40%.

D. W. Hogg 6T9

ACKNOWLEDGEMENTS

Many thanks are due to Dr. J. H. N. Deck, Neurologist, TWH, Dr. H. Berry, Neurologist, SMH, and Mr. Frank Little of Medical Photography, TWH.

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